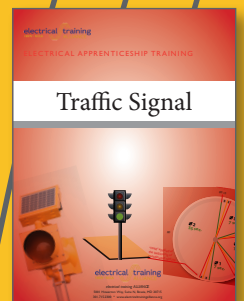
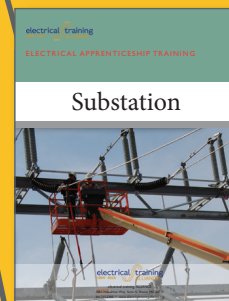
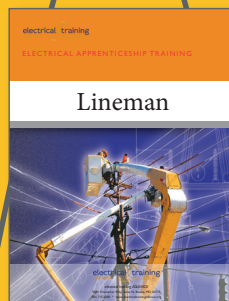
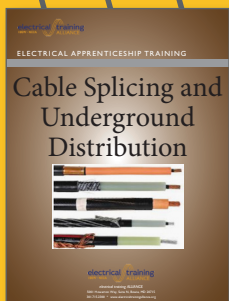


2024

Training Essentials for Linemen



Ordering Procedures

Place your order through the Online Bookstore - http://bit.ly/etA_Store

No Telephone Orders – If you are unable to order through the online bookstore please reach out to Customer Service.

You Will Be Billed For Duplicate Orders – Be careful not to send the same order twice, as the *electrical training ALLIANCE* will assume they are separate orders. In the event that this does occur, the *electrical training ALLIANCE* will credit the duplicate invoice, ONLY AFTER ALL THE DUPLICATE MERCHANDISE HAS BEEN RETURNED UNDAMAGED. You will be responsible for all shipping charges for the returned merchandise.

Next Day Air Orders – Orders received AFTER 2:00PM EST will be processed the next business day.

Receiving Shipments

You Have 30 Days To Report Missing Or Damaged Merchandise –

The *electrical training ALLIANCE* will not replace any item after 30 days from the date of the shipment. After 30 days, you have purchased the missing merchandise.

Check All Shipments – Always count the number of cartons you receive and only sign for what you count. The *electrical training ALLIANCE* cannot replace materials contained in a carton you signed for but did not receive. We track every carton sent on each order.

Use The Enclosed Packing List – Every shipment includes a packing list of all the items shipped and any items that are on backorder. Contact our office immediately if there are any discrepancies between the packing list and the actual shipment.

Return Privileges

Do Not Over-Order – The *electrical training ALLIANCE* will not accept returns of unused merchandise for refunds.

Damaged Or Defective Merchandise – Damaged or defective merchandise will be replaced immediately only if the *electrical training ALLIANCE* is notified within 30 days of the shipment. Upon receiving damaged, defective merchandise, or materials that you did not order, notify the *electrical training ALLIANCE* as soon as possible. The *electrical training ALLIANCE* will immediately replace any damaged or defective merchandise, as well as supply you with an AUTHORIZED RETURN LABEL from UPS to return the damaged or defective items.

Absolutely No Returns For A Refund

The *electrical training ALLIANCE* will replace damaged or defective material, but there will be NO MONETARY REFUNDS!

The *electrical training ALLIANCE* works diligently to provide the highest quality, most up-to-date curriculum. As a result, during an NEC cycle year, we strive to adjust all of our materials to reflect the latest edition of the *Code*. We strategically “roll-out” the new curriculum based on our understanding of the material the student purchased in the prior year(s). For example, a 5th year student who has purchased 2020 Code Calculations textbook is not expected to buy a 2023 Code Calculations textbook.

electrical training ALLIANCE Customer Service

Phone 888.652.4007

Fax 888.652.5007

Accessing the Digital Training Essentials Planning Guide/Catalog

The printed version of this catalog contains links that guide you to specific areas of interest. Please use this URL to be taken to the digital Catalog. <https://electricaltrainingalliance.org/Resources/resources>

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ACE COLLEGE CREDIT

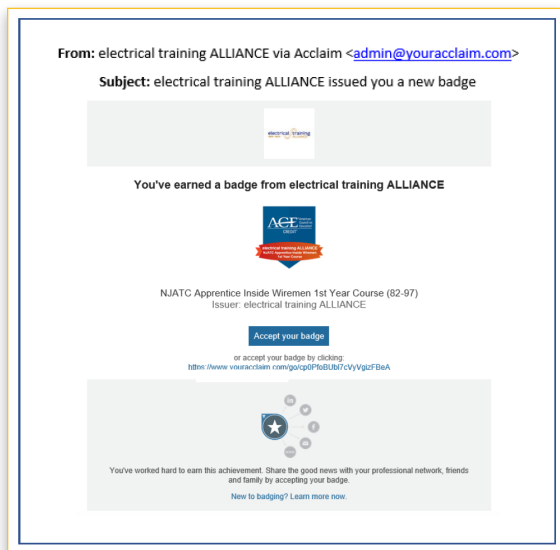
ACE College Credit



Digital Transcripts

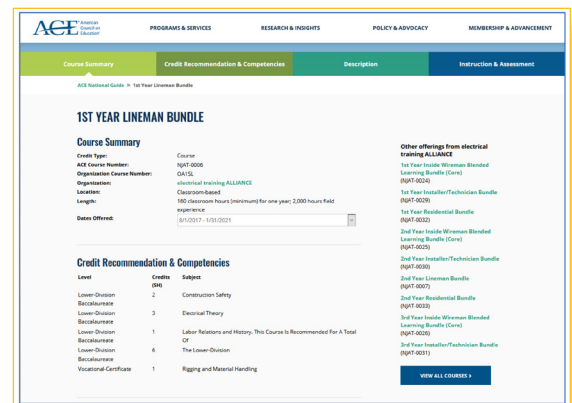
American Council on Education (ACE) has moved from a paper-based transcript system to a digital system called Credly. The process to obtain a transcript is still the same - you must complete an ACE College Credit Application and obtain signatures from the program's Chair and Secretary. Be sure to mail the request form and payment as directed.

If you already have a paper based transcript and would like an electronic version, complete an ACE College Credit Application and notate on the form that this is "NOT A NEW REQUEST." Email the form to Terri Fitzgerald (tf@etalliance.org).



You will receive an email that looks like this, do not ignore it! It is YOUR digital badge/transcript. Add admin@youracclaim.com to your accepted sender list.

This is an example of the new digital transcript that can be shared electronically to colleges, employers, etc. A digital badge can be shared to social profiles.



The ACE College Credit Application is available by accessing this link or in the back of the planning guide.
<http://bit.ly/ACECredits>

BOOKSTORE

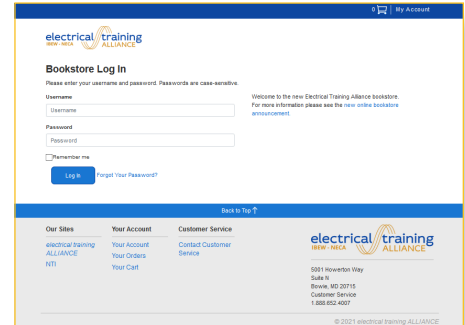
Bookstore



A detailed introduction to the bookstore is available by clicking this link: <https://bit.ly/TMS-CLCS-BkSTR>

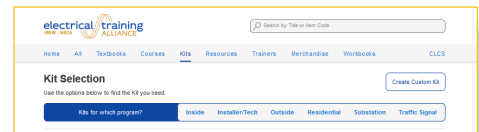
User Roles, Purchaser / Viewer

- The Admin account can make purchases, add users, control and process shopping carts from all users, view and reprint invoices, and pay open invoices.
- The Purchaser account can view all items in the bookstore, make purchases, control and process shopping carts from all users, view and reprint invoices, and pay open invoices.
- The Viewer account can view all items in the bookstore, work with and access the CLCS, and create shopping carts, but not submit orders.



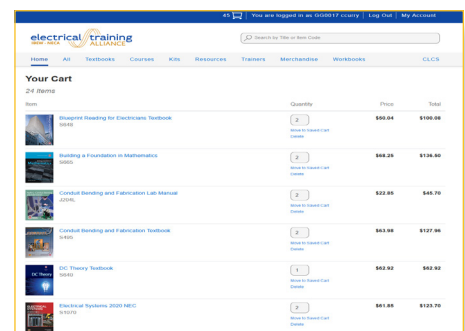
Kits, Recommended / Custom

Create a recommended kit or build a custom kit from a CLCS worksheet.



Purchasing / Distributing

If your role allows for making a final purchase, you will receive your print products by the method specified. Distribution of eBooks are only for those rostered in the TMS.



CLCS

Course Level and Credit Summary (CLCS)



Using the CLCS continues to provide additional options and accessibility to prepare to deliver your curriculum to each Registered Apprenticeship Program. Please utilize the CLCS to see recommended syllabi or to develop your own custom syllabi.

What's new?

The CLCS again this year has some new features! Before diving into those, it is important for users of the CLCS to review the CLCS User Guide found here: http://bit.ly/CLCS_UserGuide

Following a review of the user guide here are some key new tools.

1. Know the definitions



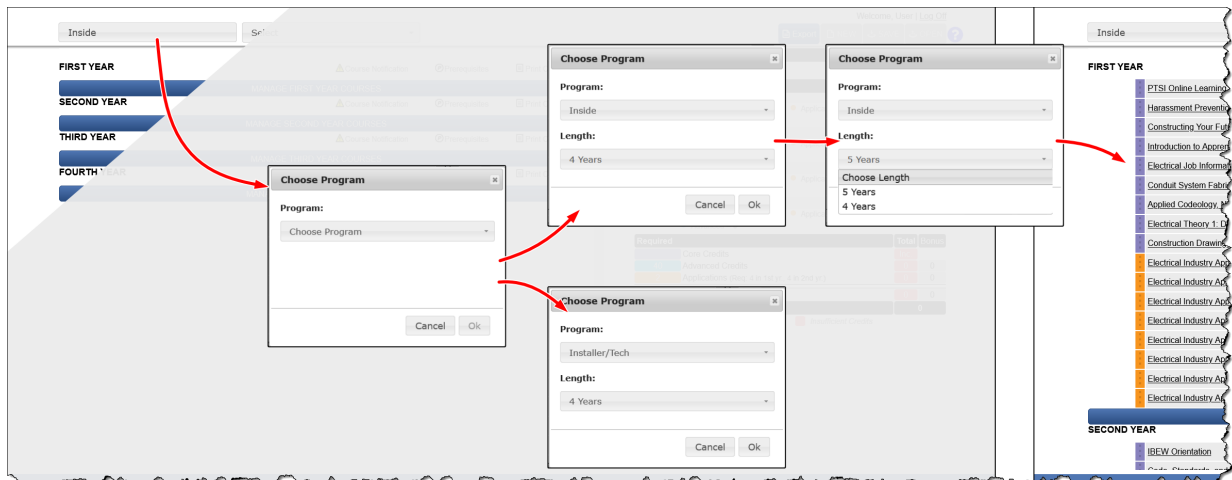
Roadmap views identifying the courses, and minimum credits where required, offer the student perspective of what they need to take to complete their apprenticeships.



Catalog views detail the program perspective of what is needed for each group for that calendar school year.

2. Identifying that a Roadmap has met the minimum required training comes down to following the process of:

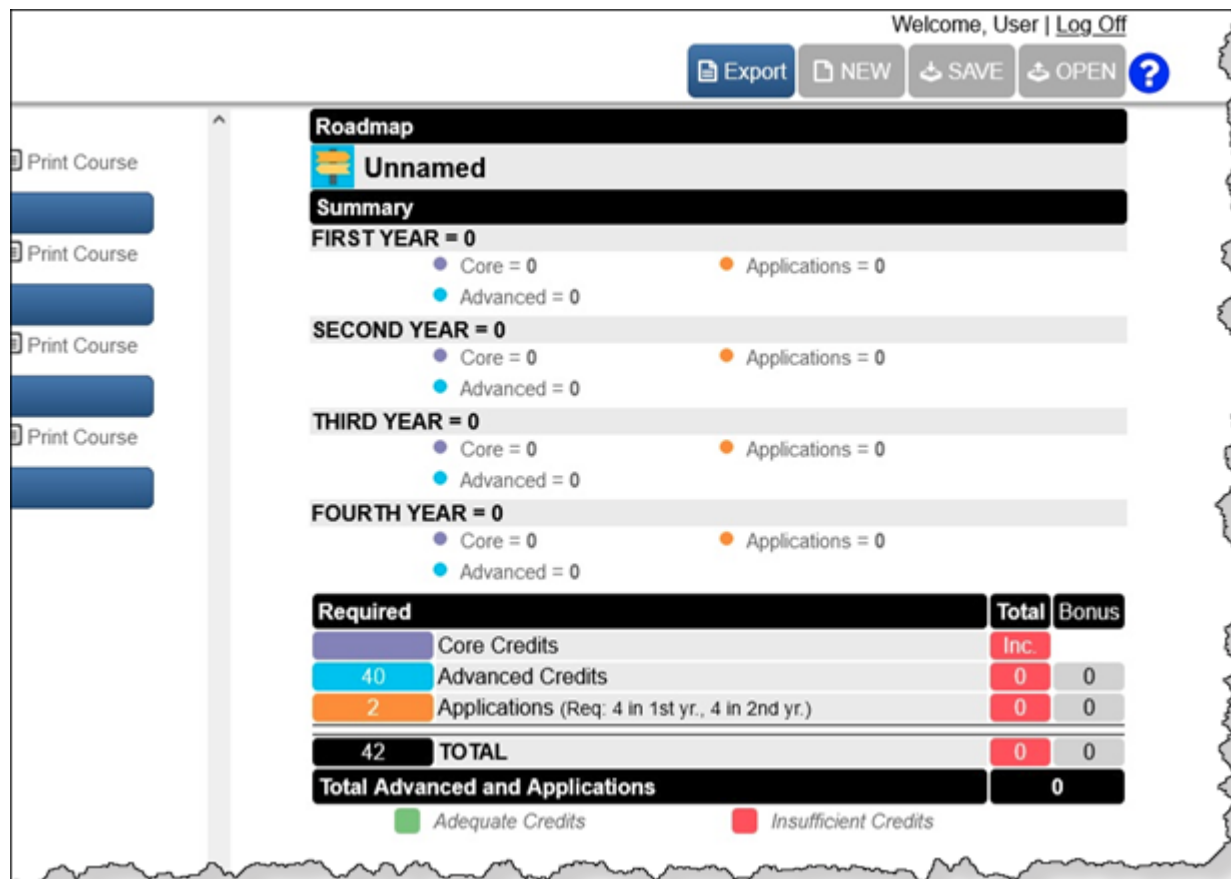
- Choose the program
- Select the number of years, if applicable
- Choose the number Related Supplemental Instruction (RSI) for your program



CLCS

3. The biggest update will be found in the calculation of the Core credits. There won't be any. This is due to the simple factor that the Core curriculum for the Inside, Installer/Technician, and Residential apprentice is just that. It's the Core. The system, when using the Roadmap view, knows many things.

- It knows which program, the number of years, and if applicable the number of RSI hours you selected as applicable to your program.
- Even more importantly, the CLCS has been built to understand when you have chosen a Blended Learning course versus a CML course. In some cases, when doing so, the system will support you with information about which further choices to make or not make. As content undergoes update to CML, lessons can move, be added, or be deleted. Where topics are trained across multiple courses it can be important to stick with one style versus another. That said, sometimes, it can be fine to swap CML for Blended at will as the topic itself is unchanged, just built with the updated CML delivery.
- Lastly, the Core values are no longer cumulated due to the value of the CML updated version most often is higher than the Blended Learning course it replaced.



Welcome, User | [Log Off](#)

[Export](#) [NEW](#) [SAVE](#) [OPEN](#) [?](#)

Roadmap

Unnamed

Summary

FIRST YEAR = 0

- Core = 0
- Advanced = 0
- Applications = 0

SECOND YEAR = 0

- Core = 0
- Advanced = 0
- Applications = 0

THIRD YEAR = 0

- Core = 0
- Advanced = 0
- Applications = 0

FOURTH YEAR = 0

- Core = 0
- Advanced = 0
- Applications = 0

Required	Total	Bonus
Core Credits	Inc.	
40 Advanced Credits	0	0
2 Applications (Req: 4 in 1st yr., 4 in 2nd yr.)	0	0
42 TOTAL	0	0
Total Advanced and Applications	0	

■ Adequate Credits ■ Insufficient Credits

CLCS

4. While Core credits are no longer added up to reach a total, the values are still placed in the CLCS for awareness and relation from one course to another. And though the Core credits are not accumulated to reach a total, the system will let you know with a green box and checkmark to let you know all the required Core training has been added to the Roadmap. Advanced credits will continue to be accumulated on the Roadmap sheets. This is to communicate to the CLCS user when the count of advanced credits has met the minimum required. The box to the right will turn green and additional credits will accrue in the bonus area.

Required		Total	Bonus
	Core Credits	✓	
38	Advanced Credits	38	9
2	Applications (Req: 4 in 1st yr., 4 in 2nd yr.)	2	2
40	TOTAL	40	11
Total Advanced and Applications		51	
Adequate Credits		Insufficient Credits	

Be sure to search for "CLCS" in the search box of the Blended Learning Blog to stay up-to-date on this powerful curriculum coordination tool.

EBOOKS

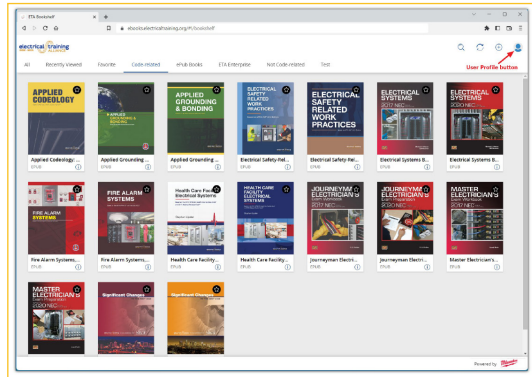
Title	Item Code
AC Theory Textbook, 3rd Edition eBook	S641E
Applied Codeology Textbook - 2020 eBook	S01720E
Applied Codeology Textbook - 2023 eBook	S01723E
Applied Grounding and Bonding Textbook - 2017 eBook	S36817E
Applied Grounding and Bonding Textbook - 2020 eBook	S36820E
Applied Grounding and Bonding Textbook - 2023 eBook	S36823E
Applied Science of Instrumentation Textbook eBook	S600E
Audio, Video, and Streaming Media Technologies Textbook eBook	S107E
Building Automation: Control Devices and Applications Textbook eBook	S518E
Building Automation: System Integration with Open Protocols Textbook eBook	S519E
Cabling, Networking, and Communication Technologies Textbook eBook	S109E
Code Calculations Textbook - 2020 eBook	S00820E
Code Calculations Textbook - 2023 eBook	S00823E
Conduit Bending and Fabrication Quick Reference Guide eBook	S495QRE
Conduit Bending and Fabrication Textbook eBook	S495E
Construction Documentation Textbook eBook	S749E
Construction Drawings Textbook eBook	S748E
Crane Certification for the Electrical Industry Textbook eBook	S521E
DC Theory Textbook eBook	S640E
Effective Leadership Skills for Construction Field Leaders, 2nd Ed. eBook	S197E
Electric Motor Drive Textbook eBook	S475E
Electrical Industry Applications Manual eBook	J300E.K
Electrical Safety-Related Work Practices Textbook - 2018 eBook	S844E
Electrical Safety-Related Work Practices Textbook - 2021 eBook	S944E
Electrical Safety-Related Work Practices Textbook - 2024 eBook	S1044E
Electrical Systems 2017 NEC eBook	S970E
Electrical Systems 2020 NEC eBook	S1070E
Electrical Systems 2023 NEC eBook	S1170E

EBOOKS

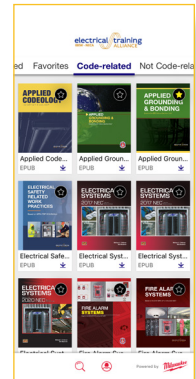
Title	Item Code
Fire Alarm Systems Textbook - 2017 eBook	S846E
Fire Alarm Systems Textbook - 2020 eBook	S946E
Fire Alarm Systems Textbook - 2023 eBook	S1046E
Health Care Facility Electrical Systems Textbook eBook - 2017	S798E
Health Care Facility Electrical Systems Textbook eBook - 2020	S898E
Health Care Facility Electrical Systems Textbook eBook - 2023 - COMING SOON!	S998E
Programmable Logic Controllers Principles and Applications, 3rd Ed. Textbook eBook	S631E
Journeyman Electrician's Exam Workbook - 2017 NEC eBook	J021SW17E
Journeyman Electrician's Exam Workbook and Answer Key - 2020 NEC eBook	J021SW20E
Journeyman Electrician's Exam Workbook and Answer Key - 2023 NEC eBook	J021SW23E
Lineworker Rigging Practices Textbook eBook	S489E
Master Electrician's Exam Workbook - 2017 NEC eBook	J024SW17E
Master Electrician's Exam Workbook and Answer Key - 2020 NEC eBook	J024SW20E
Master Electrician's Exam Workbook and Answer Key - 2023 NEC eBook	J024SW23E
Motors Textbook eBook	S649E
Photovoltaic Systems Textbook, 3rd Ed. eBook	S674E
Programmable Logic Controllers Principles and Applications, 3rd Ed. Textbook eBook	S631E
Rigging, Hoisting, and Signaling Practices Textbook eBook	S661E
Significant Changes to the NEC - 2020 eBook	S1053E
Significant Changes to the NEC - 2023 eBook	S1153E
Structured Cabling Textbook, 2nd Ed. eBook	S681E
Test Instruments and Applications Textbook eBook	S571E
Transformer Principles and Applications Textbook eBook	S476E
Transformer Principles and Applications Textbook, 2nd Ed. eBook - COMING SOON!	S576E
Voice-Data-Video: Applications and Installation Textbook eBook	S096E
Your Smart Home Voyage Textbook eBook	S188E

EBOOKS

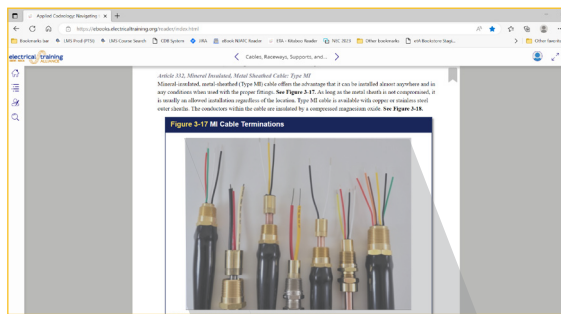
eBooks



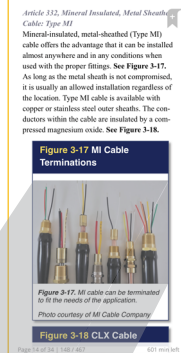
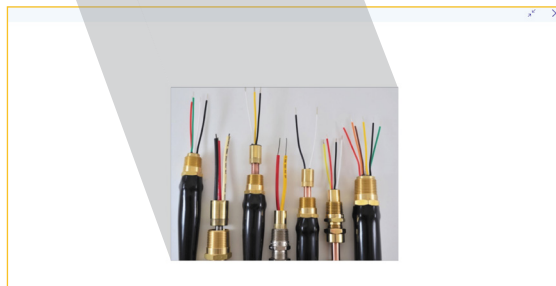
Students and Instructors are able to access content on the go, wherever they are, without need of carrying the printed books. Whether you use a laptop, chromebook, tablet, iPad, or mobile phone you will find this to be the most convenient resource in your tool box.



Our digital platform offers many great features.



Double-tapping images opens them in a zoom window where you can pinch and zoom to enlarge and move them around to inspect different areas.



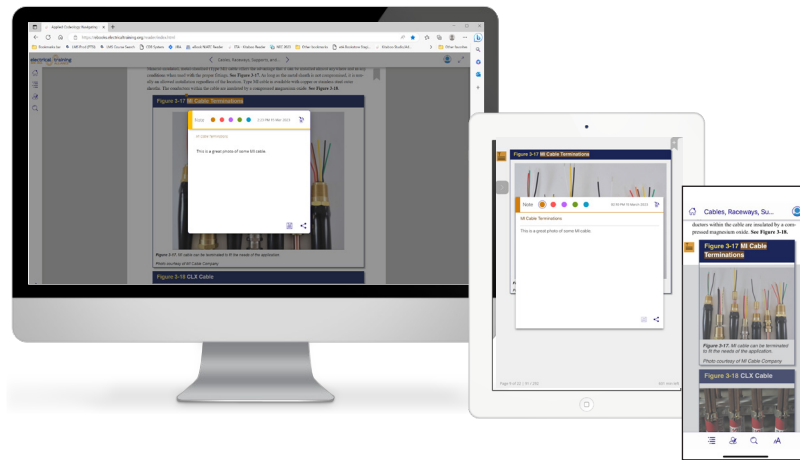
EBOOKS

eBooks

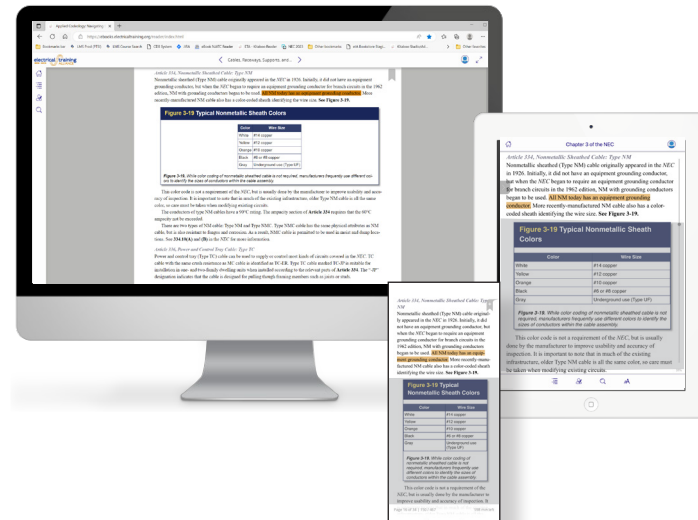


When using either the mobile app or the web portal, the system will remember where you are and what you have done (highlight, note, bookmark) from one device to another.

Notes



Highlighting



More features are explained from within the eBook reader itself. ***Be sure to review that area once you are assigned an eBook. Visit the [TMS](#) and watch the help video for full explanation of how to distribute eBooks and also how to return an eBook to the closet.

ELECTRICAL TRAINING EVENTS

Check out the Events Management Portal for a complete listing of training and events.

Apprentice Selection Procedures / Craft Certification / Test Administrator Training

Apprentice Selection Procedures

The Selection Procedures course is recommended for JATC/AJATC Committee Members, Training Directors, and other staff members involved in any part of the selection process.

This one-day course will cover important topics such as:

- How the Selection Process Works – From Start to Finish
- Federal Regulations and Laws Concerning Selecting Apprentices
- The Americans with Disabilities Act (ADA)
- Liability Issues – What Type of Exposure Do You Have
- How to Conduct the Interview – Using the New etA Interview Questions.

This course will discuss what should and should not occur during the selection process.

Craft Certification

This 8-Hour Training will prepare individuals to perform the validated Craft Certification Incremental CCPE Performance Evaluations and the 4-Hour CCPE.JW Performance Evaluation. Hands-On Evaluations are used to evaluate an individual's skills in electrical system layout and installation. The course focuses on the processes necessary to perform a validated performance evaluation. A certification and evaluator number will be awarded once this course is completed. The course also provides training in the new online scoring application for Craft Certification that allows the performance evaluator (PE) to record photographs and notes while completing an evaluation. The online scoring application returns a score report immediately after submittal.

After completing this course and returning home, the only additional step is to document the Certification Booth and Incremental Evaluation spaces through the submission of the Verification Form and digital photos. This class does NOT provide training for administering the written Craft Certification Exams.

Prerequisite: Personnel of the electrical industry are welcome to take this course to gain knowledge of Craft Certification. To obtain an evaluator number to proctor and score Craft Certification evaluations the requirement is either: (1) minimum 3 years at Electrical Journey Level of actual installations; or (2) have obtained a Craft Certification certificate. No exceptions please.

Test Administrator

This 8-hour seminar prepares individuals to administer the *electrical training ALLIANCE* Aptitude Test.

Electrical training ALLIANCE Test Administrator training is a valuable course used to train aptitude test administrators, as well as prerequisite training for other exams hosted at a training center. Aptitude test administrators are key personnel to qualifying applicants for apprenticeship under strict Department of Labor Standards per each training center's guidelines. This course will cover both written and online versions of the exam.

The focus of this course is specific to Aptitude Test Administrator Training; however the roles and responsibilities training, as well as simulated exam sessions, form an excellent foundation to train proctor/evaluators for additional exams. Please consult the specific exam guidelines for additional training requirements, as those exams will not be covered at this course session.

<https://www.electricaltrainingevents.org>

ELECTRICAL TRAINING EVENTS

Cable Splicing

A six-module, hands-on cable splicing series. These courses will provide the following:

- The importance of proper cable preparation
- Terminating cable and knot tying
- Proper installation procedures
- Preparation for the NCSCB Hand Taped Splicing certification practical exam
- NCSCB written examination

Fiber Optic

A hands-on fiber optic train-the-trainer (T-T-T) course and trainer for splicing and testing fiber optic cabling.

Instrumentation

Part A: This hybrid theory course is designed for those seeking certification under the IBEW/UA instrumentation theory course program. Completion of this course is required in order to take the instrumentation exam, which is to be scheduled upon completion of the course or following certain requirements being met

Part B: This course is designed for the journey level electrical worker seeking certification under the IBEW/UA instrumentation technician program. Completion of this course is required in order to be eligible to sit for the Part B instrumentation exam, which is the second and final level of IBEW recognized instrument qualification. This course is entirely hands-on.

New Training Director and Committee Member

This two-and-a-half-day event will guide Training Directors, Committee Members, and Trustees in becoming familiar with the responsibilities and duties of the JATC/AJATC.

NTI

NTI is an annual week of training offering a variety of education and training opportunities that meet the demands of the Electrical Industry.

OSHA

500 This course is to prepare individuals to become an OSHA authorized Instructor and prepares instructors to teach the OSHA 10-hour or the OSHA 30-hour courses available through the electrical training ALLIANCE. In addition to extensive coverage of the material, audio-visual material is also featured which can be used to help teach this important subject matter.

502 Offered by OSHA as an option to retaking the OSHA 500 before an instructor's four-year authorization to conduct 10- and 30-hour Construction Industry training expires, the 2.5 day OSHA 502 extends the instructor's authorization to conduct OSHA 10- and 30-hour classes for an additional four years. Course focus is on the most recent updates to the OSHA Construction Standards as well as the recent changes to the Outreach Training Requirements and Procedures.

<https://www.electricaltrainingevents.org>

ELECTRICAL TRAINING EVENTS

OSHA cont.

510 This course covers OSHA policies, procedures, and standards, as well as construction safety and health principles. Topics include scope and application of the OSHA construction standards. Special emphasis is placed on those areas that are the most hazardous, using OSHA standards as a guide. **IMPORTANT NOTE:** The OSHA 510 course is just one of two prerequisites that must be met to take the OSHA 500 course. The other prerequisite is to have five years experience applying principles of safety and health in construction.

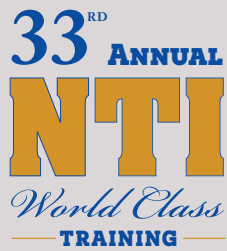
Regional Seminars

This important seminar provides local Training Directors, Business Managers, Chapter Managers, and JATC Committee Members an opportunity to hear first-hand about issues that affect apprenticeship and training in the Electrical Construction Industry.

TMS & CML Powered Training

The TMS & CML Powered Training is intended for Committee Members, Training Directors, Administrators, Office Managers, Instructors ... everyone at the training center. The ProTech Skills Institute and the electrical training ALLIANCE have updated content, instructional delivery, and Learning Management System resources including local course authoring. This one-day event is designed to give all training center staff the necessary information for understanding the updated content and how to get the most out of it. The hope is by the end of the day attendees will go away knowing what things are, where to find them, and some immediate methods for using/delivering both the CML courses and the new LMS features.

<https://www.electricaltrainingevents.org>



Information Booklet

National Training Institute

July 27 - August 2
2024



INFORMATION

<https://nti.electricaltrainingevents.org/>

REGISTRATION

<https://electricaltrainingevents.org/>



Washtenaw Community College

Eastern Michigan
University



Washtenaw
Community College



Destination Ann
Arbor



TESTING UPDATES

THE NEW TESTING PLATFORM/PROCESS

Like the legacy Test Generator, the new Testing Administration Platform and Process provides the instructor with an assessment and reporting tool; however, it has been redesigned from the ground up to address the comments and concerns of Training Directors and instructors.

Built on the LMS Quiz Engine, the new Testing Platform will provide a more stable and robust foundation from which to administer exams.

For the Training Director or Administrator, enabling instructor access to the new Testing Platform is as simple as selecting the desired options checkboxes in the **EDIT INSTRUCTOR** dialog in the TMS.

Access Type:

Yearly Subscription

View Access History

Expires/Renews On: 02/01/2025

Exam Generator Permissions:

Test Proctor Permissions ⓘ

Can View Questions

Can Swap Questions

Can See Detail Report

Can See Question Analysis Report

Can See Answer Key

Can See Skills Gap Report

Program Classification:

Inside

Unlike the legacy Test Generator, the new Testing Platform is not accessed through the **ASSESSMENTS** tab of the LMS but directly from within the respective course.

HOME | MY COURSES | TOOLS/RESOURCES | REPORTS | ASSESSMENTS | HELP | MY RECORDS

Back

Home > Outside 1st Year, Lvl I

Outside 1st Year, Lvl I

Welcome to Outside 1st Year, Level I Online Materials

This course begins with a lesson that instructs the student on how to study the course and gives helpful pointers on negotiating the course materials. The next lessons present the responsibilities of the apprentice and the advantages of an IBEW/NECA apprenticeship. Other lessons teach the student about safety and hazard awareness and how to identify and care for basic tools of the trade. An introduction to OSHA is given and then the last lessons cover topics such as fall protection, climber cutouts, climbing poles, and pole top and bucket rescues.

Resources

Lesson 16: Bucket Rescue ***

EXAMS

Click the button on the right to prepare a new exam. The list below shows only your most recent exams, you may [view all](#) your exams on the exam management page.

Prepare Exam

Exam ID	Name	Session	Prepared By	Administered By	Date Created	Students	Attempts	Status	
82243	2024-03-25_Errata	TS0008: Stover Test the Test	Training Director Assistant tda-ts0008		03/25/2024	0	0	Open	
82228	2024-03-22_Reporting	TS0008: Stover Test the Test	Training Director Assistant tda-ts0008		03/22/2024	4	1	Open	

TESTING UPDATES

Not all courses in the catalog will be available on roll out. Additional courses being added on an ongoing basis. The legacy Test Generator, accessed through the **ASSESSMENTS** tab, will continue to remain available for all courses during the transition period. Nearly every apprenticeship exam that will be found in the new Testing Platform is currently also found in the **ASSESSMENTS** tab system. For those exams found in both locations, this year, it will be a program decision to choose which to test students from. The **ASSESSMENTS** system will stay up and running until we have all courses exams on the LMS fully supported by the new Testing Platform. Please read about the new Testing Platform and Process Feature Highlights below. At the bottom, note the detailed information link and an email address to send process type questions. As always, when using the **ASSESSMENTS** system or dealing with any PTSI LMS concern, please use the Help system in the LMS as emails may not be checked when recipients are unavailable.

FEATURE HIGHLIGHTS:

- **The new Testing Platform** is built utilizing **RESPONDUS LOCKDOWN BROWSER**, which eliminates the ability to screenshot, open additional applications (such as email), and the need to monitor for out-of-focus issues.
 - The use of the Respondus Lockdown Browser will enable secure remote testing and will be implemented at a later date.
- **The new Testing Platform** is less prone to issues related to internet connectivity.
- **The new Testing Platform** no longer has a pre-defined time limit for exams, removing the need for instructors to override the default and returning time management to the instructor/proctor.
- **The new Testing Platform** utilizes most the question types available in the lesson quizzes, including the advanced types not currently available in the Legacy Test Generator.
- **The new Testing Platform** allows a single proctor to administer multiple exams simultaneously, without the need to be logged in on multiple devices.
- **The new Testing Platform** provides simplified reporting, which will assist instructors in determining and correcting student deficiencies.
- **The new Testing Platform** relocates the setting for things like editing tests (question swapping) and scoring override to the **LMS** simplifying administration at the training center.
- **The new Testing Platform** does not support generation of paper exams. Accommodations for students may require alternate means such as an exam reader.

For more detailed information on the new Testing Platform or Process visit:

<https://lrm.electricaltrainingalliance.org/qr/10190>

Questions about the testing process can be sent to PTSITestingProcess@etalliance.org.



VIRTUAL REALITY

**Are you interested in Virtual Reality Training?
Do you like free material for your labs?**



If you answered yes to these questions, we have a deal for you!!

For a limited time, when you sign up your students for the Virtual Reality training course Virtual Reality, Branch Circuit Wiring, you are eligible to receive free content for your classroom labs. This offer will both allow your students to come to the lab prepared for the hands-on experience as well as allow your training center to obtain the needed materials to have labs that reinforce the learning content in the virtual reality experience. The more students that you enroll in the virtual reality course the more money you will receive to equip your labs.



For additional information on the virtual reality training, visit the Instructor Portal [blog](#) post about virtual reality.



For additional information, visit qr.njatcdb.org Item #8965

For more information on how to get started at your local training center, visit the Virtual Reality [Resources](#).



For additional information, visit qr.njatcdb.org Item #7937

To register to receive the free material, click [here](#).



For additional information, visit qr.njatcdb.org Item #8966

Course Details - See Page 106 for more information.

OTHER

Blog -



Be sure to stay up-to-date with all of the changes to the LMS, revision info about content, and system notifications by subscribing to the blog. To subscribe to receive messages via email, click [SUBSCRIBE](#) and look to the right side of the page below the Article Categories where you only need to provide your name and email.

Podcast -



Have you checked out our podcast, Say Watt, where we hear from those connected to the industry about what's going on in our world of electrical apprenticeship? We are joined by some fantastic guests to discuss an array of topics. Be sure to [tune in!](#)



For additional information, visit qr.njatcdb.org Item #7707

Sample Computer Mediated Course and CourseWare -



This course is designed to deliver examples of some of the latest courseware released by the *electrical training ALLIANCE*. Included in the course are individual lessons from thirteen different courses. The makeup of the course is that each lesson comes from one of the lessons within the course covering that topic. Check out the instructor resources and the instructions per each topic. Please note that the instructions are the exact ones you would find within that specific topic in the full course. They are not meant as instructions for how this example course is designed to function. Click [here](#) to visit the course.

Training Partner New Product Symposium -



Do you ever finish presenting your class material a few minutes early and don't know how to fill the remaining time? Have you ever wondered about the "latest and greatest" from our industry's Training Partners? We have something that may help you on both fronts. The Training Partner New Product Symposium course is designed to keep both you and your students up-to-date with what our industry partners have to offer. Topics that are covered include:

- News and General Information
- New Product Information
- Product Applications
- Product Training



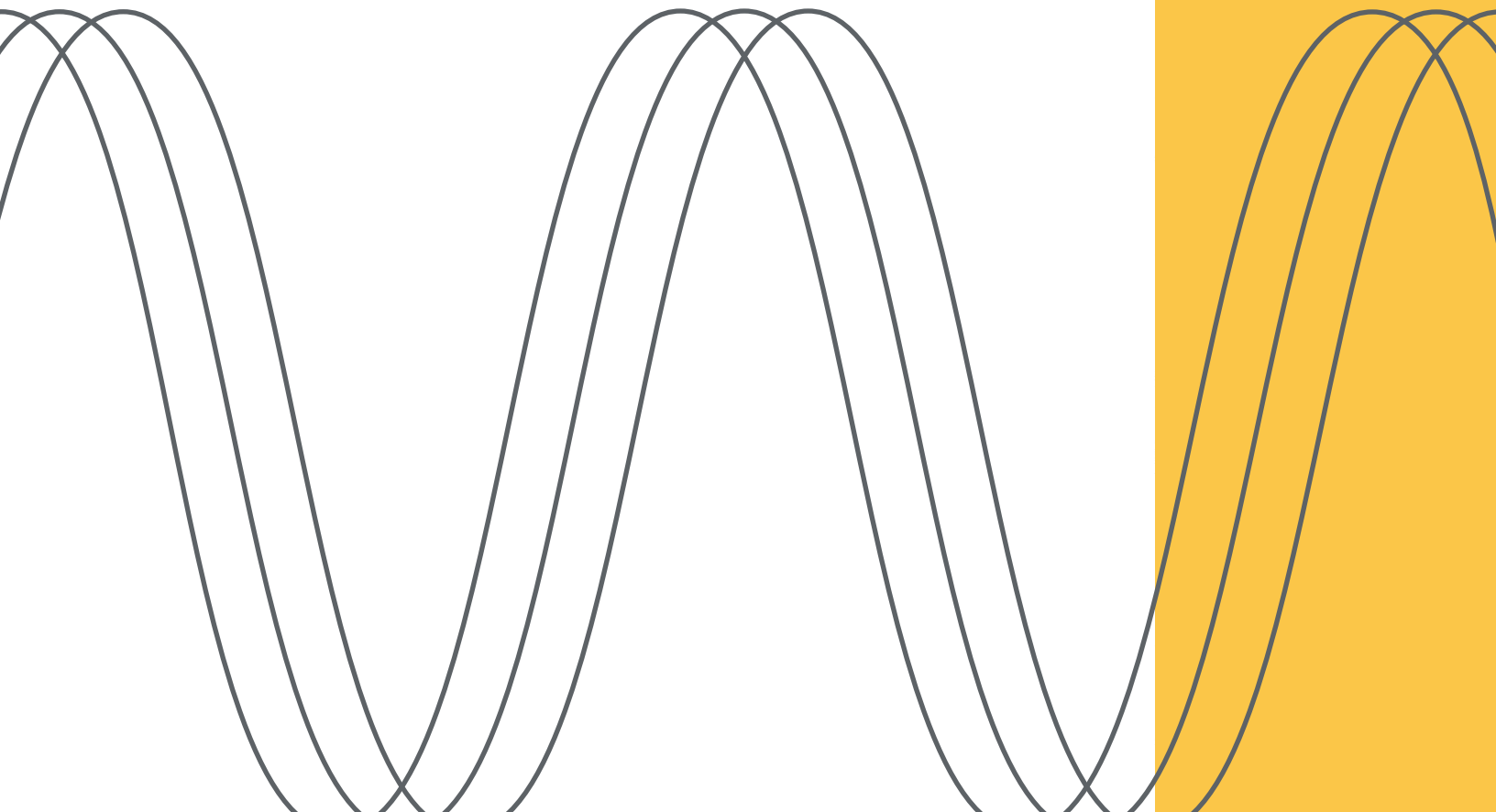
For additional information, visit qr.njatcdb.org Item #8964

*Note: Although this content is presented in a course format, it is not intended to be a course, but more of an ever changing information resource for all of the training center stakeholders. Click [here](#) to check it out!





Kits



1ST YEAR

CABLE SPLICING AND UNDERGROUND DISTRIBUTION

All Course purchases
are made in the Training
Management System
(TMS).

NOTE:

Harassment Prevention

Course	Item Code	Student
Cable Splicing & Underground Dist. 1st Year, Level I	UD1-1LM	\$ 14.16
Cable Splicing & Underground Dist. 1st Year, Level II	UD1-2LM	\$ 14.16
Cable Splicing & Underground Dist. 1st Year, Level III	UD1-3LM	\$ 14.16
Cable Splicing & Underground Dist. 1st Year, Level IV	UD1-4LM	\$ 14.16
Cable Splicing & Underground Dist. 1st Year, Level V	UD1-5LM	\$ 14.16
Cable Splicing & Underground Dist. 1st Year, Level VI	UD1-6LM	\$ 14.16
Harassment Prevention: Awareness and Resp. 2024 - CML	J158LM.E	\$ 4.32
PTSI Online Learning System Review	PTSI001	\$ 0.00
1st Year Student Course Fees - Per Student		\$ 89.28

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Lineworker Rigging Practices	S489	\$ 82.77
NJATC's Safety Handbook	S184	\$ 26.08
Underground Distribution	S468	\$ 96.18
TI-30X IIS Solar Calculator	S159	\$ 20.08
1st Year Student References		\$ 455.24
Cost of Student Course Fees plus References		\$ 544.52

2ND YEAR

CABLE SPLICING AND UNDERGROUND DISTRIBUTION

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Cable Splicing & Underground Dist. 2nd Year, Level I	UD2-1LM	\$ 14.16
Cable Splicing & Underground Dist. 2nd Year, Level II	UD2-2LM	\$ 14.16
Cable Splicing & Underground Dist. 2nd Year, Level III	UD2-3LM	\$ 14.16
Cable Splicing & Underground Dist. 2nd Year, Level IV	UD2-4LM	\$ 14.16
Cable Splicing & Underground Dist. 2nd Year, Level V	UD2-5LM	\$ 14.16
Cable Splicing & Underground Dist. 2nd Year, Level VI	UD2-6LM	\$ 14.16
2nd Year Student Course Fees - Per Student		\$ 84.96

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
AC Theory	S641	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Personal Protective Grounding	S562	\$ 52.96
Terminations & Splices Theory - Practice	S094	\$ 15.19
Test Instruments	S471	\$ 64.53
Transformation for Lineworkers	S458	\$ 63.31
2nd Year Student References		\$ 290.63
Cost of Student Enrollment plus References		\$ 375.59

The Instructor References include all references above in addition to the items in the table below.

Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
NJATC's Safety Handbook	S184	\$ 26.08
Underground Distribution	S468	\$ 96.18
2nd Year Instructor References		\$ 643.02

3RD YEAR

CABLE SPLICING AND UNDERGROUND DISTRIBUTION

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Cable Splicing & Underground Dist. 3rd Year, Level I	UD3-1LM	\$ 14.16
Cable Splicing & Underground Dist. 3rd Year, Level II	UD3-2LM	\$ 14.16
Cable Splicing & Underground Dist. 3rd Year, Level III	UD3-3LM	\$ 14.16
Cable Splicing & Underground Dist. 3rd Year, Level IV	UD3-4LM	\$ 14.16
Cable Splicing & Underground Dist. 3rd Year, Level V	UD3-5LM	\$ 14.16
Cable Splicing & Underground Dist. 3rd Year, Level VI	UD3-6LM	\$ 14.16
3rd Year Student Course Fees - Per Student		\$ 84.96

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Distribution Volume II: Capacitors, Regulators, Circuit Protection	S037	\$ 22.80
Flagger's Certification Handbook	S348	\$ 19.56
Reference Guide to Fiber Optics	S480	\$ 71.84
Substation Construction Guidelines	S496	\$ 62.10
3rd Year Student References		\$ 176.30
Cost of Student Enrollment plus References		\$ 261.26

The Instructor References include all references above in addition to the items in the table below.

AC Theory	S641	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
NJATC Safety Handbook	S184	\$ 26.08
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
Terminations & Splices Theory - Practice	S094	\$ 15.19
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Transformation for Lineworkers	S458	\$ 63.31
Underground Distribution Textbook	S468	\$ 96.18
3rd Year Instructor References		\$ 605.02

1ST YEAR

OUTSIDE

All Course purchases
are made in the Training
Management System
(TMS).

NOTE:

Harassment Prevention

Course	Item Code	Student
Harassment Prevention: Awareness and Resp. 2024 - CML	J158LM.E	\$ 4.32
Outside 1st Year, Level I	OA1-1LM	\$ 10.51
Outside 1st Year, Level II	OA1-2LM	\$ 10.51
Outside 1st Year, Level III	OA1-3LM	\$ 10.51
Outside 1st Year, Level IV	OA1-4LM	\$ 10.51
Outside 1st Year, Level V	OA1-5LM	\$ 10.51
Outside 1st Year, Level VI	OA1-6LM	\$ 10.51
PTSI Online Learning System Review	PTSI001	\$ 0.00
1st Year Student Course Fees - Per Student		\$ 67.38

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Lineworker Rigging Practices	S489	\$ 82.77
NJATC's Safety Handbook	S184	\$ 26.08
Personal Protective Grounding for Worker Safety - 2nd Ed.	S562	\$ 52.96
Underground Distribution	S468	\$ 96.18
TI-30X IIS Solar Calculator	S159	\$ 20.08
1st Year Student References		\$ 508.20
Cost of Student Course Fees plus References		\$ 575.58

2ND YEAR

OUTSIDE

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Outside 2nd Year, Level I	OA2-1LM	\$ 17.71
Outside 2nd Year, Level II	OA2-2LM	\$ 17.71
Outside 2nd Year, Level III	OA2-3LM	\$ 17.71
Outside 2nd Year, Level IV	OA2-4LM	\$ 17.71
Outside 2nd Year, Level V	OA2-5LM	\$ 17.71
Outside 2nd Year, Level VI	OA2-6LM	\$ 17.71
2nd Year Student Course Fees - Per Student		\$ 106.26

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
AC Theory	S641	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Flagger Certification Handbook	S348	\$ 19.56
Terminations & Splices Theory - Practice	S094	\$ 15.19
Test Instruments	S471	\$ 64.53
Transformation for Lineworkers	S458	\$ 63.31
2nd Year Student References		\$ 257.23
Cost of Student Enrollment plus References		\$ 363.49

The Instructor References include all references above in addition to the items in the table below.

Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Lineworker Rigging Practices	S489	\$ 82.77
NJATC's Safety Handbook	S184	\$ 26.08
Underground Distribution	S468	\$ 96.18
2nd Year Instructor References		\$ 692.39

3RD YEAR

OUTSIDE

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Outside 3rd Year, Level I	OA3-1LM	\$ 14.16
Outside 3rd Year, Level II	OA3-2LM	\$ 14.16
Outside 3rd Year, Level III	OA3-3LM	\$ 14.16
Outside 3rd Year, Level IV	OA3-4LM	\$ 14.16
Outside 3rd Year, Level V	OA3-5LM	\$ 14.16
Outside 3rd Year, Level VI	OA3-6LM	\$ 14.16
3rd Year Student Course Fees - Per Student		\$ 84.96

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Distribution Volume II: Capacitors, Regulators, Circuit Protection	S037	\$ 22.80
Hot Sticks: A Manual on High Voltage Line Maintenance	S035	\$ 36.65
Live Line Work Practices	S459	\$ 96.18
Reference Guide to Fiber Optics	S480	\$ 71.84
Substation Construction Guidelines	S496	\$ 62.10
3rd Year Student References		\$ 289.57
Cost of Student Enrollment plus References		\$ 374.53

The Instructor References include all references above in addition to the items in the table below.

AC Theory	S641	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Transformation for Lineworkers	S458	\$ 63.31
3rd Year Instructor References		\$ 580.84

1ST SESSION

OUTSIDE HYBRID

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Harassment Prevention: Awareness and Responsibilities - 2024 - CML	J158LM.E	\$ 4.32
Outside Hybrid: Climbing	O102LM	\$ 5.82
Outside Hybrid: DC Theory 1	O202LM.1	\$ 10.67
Outside Hybrid: DC Theory 2	O202LM.2	\$ 8.73
Outside Hybrid: Distribution Basics 1	O566LM.1	\$ 8.73
Outside Hybrid: Grounding	O210LM	\$ 14.55
Outside Hybrid: Mathematics	O201LM	\$ 11.64
Outside Hybrid: Orientation 1	O200LM.1	\$ 11.64
Outside Hybrid: Rescue	O103LM	\$ 5.00
Outside Hybrid: Rigging	O489LM	\$ 6.79
Outside Hybrid: Safety 1	O184LM.1	\$ 8.73
Outside Hybrid: Tools	O101LM	\$ 5.82
Outside Hybrid: Transformers 1	O458LM.1	\$ 7.76
Outside Hybrid: Transmission	O104LM	\$ 5.00
PTSI Online Learning System Review	PTSI001	\$ 0.00

1st Session Student Course Fees - Per Student

\$ 115.20

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
AC Theory	S641	\$ 71.84
Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Distribution Volume II: Capacitors, Regulators, Circuit Protection	S037	\$ 22.80
Lineworker Rigging Practices	S489	\$ 82.77
NJATCs Safety Handbook	S184	\$ 26.08
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
Test Instruments	S471	\$ 64.53
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
TI-30X IIS Solar Calculator	S159	\$ 20.08
Transformation for Lineworkers	S458	\$ 63.31
Underground Distribution	S468	\$ 96.18

1st Session Student References

\$ 753.48

Cost of Student Enrollment plus References

\$ 868.68

2ND SESSION

OUTSIDE HYBRID

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Outside Hybrid: AC Theory	O203LM	\$ 12.61
Outside Hybrid: Distribution Basics 2	O566LM.2	\$ 10.67
Outside Hybrid: Equipment Operation	O105LM	\$ 7.76
Outside Hybrid: Job Information	O221LM	\$ 8.73
Outside Hybrid: Live Line	O459LM	\$ 11.64
Outside Hybrid: Orientation 2	O200LM.2	\$ 6.79
Outside Hybrid: Safety 2	O184LM.2	\$ 6.79
Outside Hybrid: Substation 1	O496LM.1	\$ 5.82
Outside Hybrid: Transformers 2	O458LM.2	\$ 9.70
2nd Session Student Course Fees - Per Student		\$ 80.51

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Hot Sticks	S035	\$ 36.65
Live-Line Work Practices	S459	\$ 96.18
Substation Construction Guidelines	S496	\$ 62.10
2nd Session Student References		\$ 194.93
Cost of Student Enrollment plus References		\$ 275.44

The Instructor References include all references above in addition to the items in the table below.

AC Theory	S641	\$ 71.84
DC Theory	S640	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Lineworker Rigging Practices	S489	\$ 82.77
NJATCs Safety Handbook	S184	\$ 26.08
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Transformation for Lineworkers	S458	\$ 63.31
Underground Distribution	S468	\$ 96.18
2nd Year Instructor References		\$ 710.11

3RD SESSION

OUTSIDE HYBRID

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Outside Hybrid: Cable Splicing	O094LM	\$ 12.61
Outside Hybrid: Distribution Basics 3	O566LM.3	\$ 10.67
Outside Hybrid: Fiber Optics	O480LM	\$ 5.00
Outside Hybrid: Orientation 3	O200LM.3	\$ 7.76
Outside Hybrid: Substation 2	O496LM.2	\$ 6.79
Outside Hybrid: Substation 3	O496LM.3	\$ 7.76
Outside Hybrid: Traffic Signals	O348LM	\$ 10.67
Outside Hybrid: Transformers 3	O458LM.3	\$ 5.00
Outside Hybrid: Underground Distribution	O468LM	\$ 9.70
Outside Hybrid: Wind and Solar	O299LM	\$ 5.00
3rd Session Student Course Fees - Per Student		\$ 80.96

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Flagger's Certification Handbook	S348	\$ 19.56
Reference Guide to Fiber Optics	S480	\$ 71.84
Terminations & Splices Theory - Practice	S094	\$ 15.19
3rd Session Student References		\$ 106.59
Cost of Student Enrollment plus References		\$ 187.55

The Instructor References include all references above in addition to the items in the table below.

AC Theory	S641	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Distribution Volume II: Capacitors, Regulators, Circuit Protection	S037	\$ 22.80
NJATCs Safety Handbook	S184	\$ 26.08
Substation Construction Guidelines	S496	\$ 62.10
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Transformation for Lineworkers	S458	\$ 63.31
Underground Distribution	S468	\$ 96.18
3rd Year Instructor References		\$ 552.06

1ST YEAR

SUBSTATION

All Course purchases
are made in the Training
Management System
(TMS).

NOTE:

Harassment Prevention

Course	Item Code	Student
Harassment Prevention: Awareness and Resp. 2024- CML	J158LM.E	\$ 4.32
PTSI Online Learning System Review	PTSI001	\$ 0.00
Substation 1st Year, Level I	JSS1-1LM	\$ 14.16
Substation 1st Year, Level II	JSS1-2LM	\$ 14.16
Substation 1st Year, Level III	JSS1-3LM	\$ 14.16
Substation 1st Year, Level IV	JSS1-4LM	\$ 14.16
Substation 1st Year, Level V	JSS1-5LM	\$ 14.16
Substation 1st Year, Level VI	JSS1-6LM	\$ 14.16
1st Year Student Course Fees - Per Student		\$ 89.28

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
Hot Sticks	S035	\$ 36.65
Lineworker Rigging Practices	S489	\$ 82.77
Live Line Work Practices	S459	\$ 96.18
NJATC's Safety Handbook	S184	\$ 26.08
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
Substation Construction Guidelines	S496	\$ 62.10
Underground Distribution	S468	\$ 96.18
TI-30X IIS Solar Calculator	S159	\$ 20.08
Test Instruments	S471	\$ 64.53
1st Year Student References		\$ 767.66
Cost of Student Course Fees plus References		\$ 856.94

2ND YEAR

SUBSTATION

All Course purchases
are made in the Training
Managment System
(TMS).

Course	Item Code	Student
Substation 2nd Year, Level I	JSS2-1LM	\$ 14.16
Substation 2nd Year, Level II	JSS2-2LM	\$ 14.16
Substation 2nd Year, Level III	JSS2-3LM	\$ 14.16
Substation 2nd Year, Level IV	JSS2-4LM	\$ 14.16
Substation 2nd Year, Level V	JSS2-5LM	\$ 14.16
Substation 2nd Year, Level VI	JSS2-6LM	\$ 14.16
2nd Year Student Course Fees - Per Student		\$ 84.96

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
AC Theory	S641	\$ 71.84
Distribution Volume I: Transformer Theory for Line People	S036	\$ 22.80
Transformation for Lineworkers	S458	\$ 63.31
2nd Year Student References		\$ 157.95
Cost of Student Course Fees plus References		\$ 242.91

The Instructor References include all references above in addition to the items in the table below.

Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
NJATC's Safety Handbook	S184	\$ 26.08
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
Substation Construction Guidelines	S496	\$ 62.10
Test Instruments	S471	\$ 64.53
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
2nd Year Instructor References		\$ 593.75

3RD YEAR

SUBSTATION

All Course purchases
are made in the Training
Management System
(TMS).

Course	Item Code	Student
Substation 3rd Year, Level I	JSS3-1LM	\$ 14.16
Substation 3rd Year, Level II	JSS3-2LM	\$ 14.16
Substation 3rd Year, Level III	JSS3-3LM	\$ 14.16
Substation 3rd Year, Level IV	JSS3-4LM	\$ 14.16
Substation 3rd Year, Level V	JSS3-5LM	\$ 14.16
Substation 3rd Year, Level VI	JSS3-6LM	\$ 14.16
3rd Year Student Course Fees - Per Student		\$ 84.96

References

All Reference purchases
are made in the
Bookstore.

Item Title	Item Number	Price
Reference Guide to Fiber Optics	S480	\$ 71.84
Substation Operation and Maintenance	S601	\$ 135.15
Terminations & Splices Theory - Practice	S094	\$ 15.19
3rd Year Student References		\$ 222.18
Cost of Student Course Fees plus References		\$ 307.14

The Instructor References include all references above in addition to the items in the table below.

AC Theory	S641	\$ 71.84
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
NJATC's Safety Handbook	S184	\$ 26.08
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
Substation Construction Guidelines	S496	\$ 62.10
Test Instruments	S471	\$ 64.53
Underground Distribution	S468	\$ 96.18
3rd Year Instructor References		\$ 676.23

1ST YEAR

TRAFFIC SIGNAL

Student Workbook & Instructor Guide Kit

Item Title	Item Number	Price	Item Title	Item Number	Price
Traffic Signal Technician SW 1-1	TS1-1SW	\$ 42.87	Traffic Signal Technician IG 1-1	TS1-1IG	\$ 57.83
Traffic Signal Technician SW 1-2	TS1-2SW	\$ 26.21	Traffic Signal Technician IG 1-2	TS1-2IG	\$ 54.47
Traffic Signal Technician SW 1-3	TS1-3SW	\$ 20.64	Traffic Signal Technician IG 1-3	TS1-3IG	\$ 32.53
Traffic Signal Technician SW 1-4	TS1-4SW	\$ 25.41	Traffic Signal Technician IG 1-4	TS1-4IG	\$ 37.95
Traffic Signal Technician SW 1-5	TS1-5SW	\$ 46.69	Traffic Signal Technician IG 1-5	TS1-5IG	\$ 61.99
Traffic Signal Technician SW 1-6	TS1-6SW	\$ 34.14	Traffic Signal Technician IG 1-6	TS1-6IG	\$ 47.81
Traffic Signal Technician Test	TS1T06	\$ 11.12	Traffic Signal Technician Answer Key	TS1TAK06	\$ 17.17
1st Year Traffic Signal SW Kit	TS1SWK	\$ 292.46	1st Year Traffic Signal IG Kit	TS1IGK	\$ 382.49

Student Workbook & Instructor Guide Kit Complete

The kit complete includes all of the contents of either the Student Workbook kit or Instructor Guide kit plus these items.

Item Title	Item Number	Price
Building a Foundation in Mathematics	S665	\$ 77.93
Conduit Bending and Fabrication	S377	\$ 22.17
DC Theory	S640	\$ 71.84
Electrical Systems 2023 <i>NEC</i>	S1170	\$ 70.62
<i>National Electrical Code - 2023</i>	S1150	\$ 123.17
NJATC's Safety Handbook	S184	\$ 26.08
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
The Lineworker's Rigging Handbook	S467	\$ 63.31
Traffic Control Flagger's Certification Handbook	S348	\$ 19.56
TI-30X IIS Solar Calculator	S159	\$ 20.08
1st Year Traffic Signal SW Kit Complete	TS1SWKC	\$ 655.52
1st Year Traffic Signal IG Kit Complete	TS1IGKC	\$ 737.67

2ND YEAR

TRAFFIC SIGNAL

Student Workbook & Instructor Guide Kit

Items in shaded box signify material that is used this year but was purchased by the student in a previous year.

Item Title	Item Number	Price	Item Title	Item Number	Price
Traffic Signal Technician SW 2-1	TS2-1SW	\$ 38.81	Traffic Signal Technician IG 2-1	TS2-1IG	\$ 51.75
Codeology SW	J207SW.J	\$ 31.65	Codeology IG	J207IG.J	\$ 42.22
Traffic Signal Technician SW 2-3	TS2-3SW	\$ 39.98	Traffic Signal Technician IG 2-3	TS2-3IG	\$ 52.96
Plans Set Booklet	TS2-3P	\$ 16.48	Plans Set Booklet	TS2-3P	\$ 16.48
Traffic Signal Technician SW 2-4	TS2-4SW	\$ 38.81	Traffic Signal Technician IG 2-4	TS2-4IG	\$ 54.47
Traffic Signal Technician SW 2-5	TS2-5SW	\$ 42.35	Traffic Signal Technician IG 2-5	TS2-5IG	\$ 58.27
Traffic Signal Technician SW 2-6	TS2-6SW	\$ 69.17	Traffic Signal Technician IG 2-6	TS2-6IG	\$ 82.57
Traffic Signal Technician Test	TS2T	\$ 16.48	Traffic Signal Technician Answer Key	TS2TAK	\$ 22.86
2nd Year Traffic Signal SW Kit	TS2SWK	\$ 293.69	2nd Year Traffic Signal IG Kit	TS2IGK	\$ 375.97

Student Workbook & Instructor Guide Kit Complete

The kit complete includes all of the contents of either the Student Workbook kit or Instructor Guide kit plus these items.

Item Title	Item Number	Price
AC Theory	S641	\$ 71.84
Applied Codeology	S01714	\$ 55.88
Personal Protective Grounding for Worker Safety	S562	\$ 52.96
Test Instruments	S471	\$ 64.53
Transformer Principles & Applications	S476	\$ 73.05
Building a Foundation in Mathematics	S665	\$ 77.93
DC Theory	S640	\$ 71.84
National Electrical Code - 2023	S1150	\$ 123.17
NJATC's Safety Handbook	S184	\$ 26.08
The Guidebook for Linemen and Cablemen	S566	\$ 80.36
2nd Year Traffic Signal SW Kit Complete	TS2SWKC	\$ 626.89
2nd Year Traffic Signal IG Kit Complete	TS2IGKC	\$1017.49

3RD YEAR

TRAFFIC SIGNAL

Student Workbook & Instructor Guide Kit

Items in shaded box signify material that is used this year but was purchased by the student in a previous year.

Item Title	Item Number	Price	Item Title	Item Number	Price
Traffic Signal Technician SW 3-1	TS3-1SW	\$ 56.74	Traffic Signal Technician IG 3-1	TS3-1IG	\$ 69.40
Traffic Signal Technician SW 3-2	TS3-2SW	\$ 34.31	Traffic Signal Technician IG 3-2	TS3-2IG	\$ 46.47
Traffic Signal Technician SW 3-3/3-4	TS3-3SW	\$ 79.46	Traffic Signal Technician IG 3-3/3-4	TS3-3IG	\$ 80.24
TS Bridge Plan Set	TS3-3P	\$ 34.26	TS Bridge Plan Set	TS3-3P	\$ 34.26
Fiber Optic SW	J277SW	\$ 27.87	Fiber Optic IG	J277IG	\$ 40.54
I/T CCTV SW	J268SW	\$ 30.40	I/T CCTV IG	J268IG	\$ 43.07
Traffic Signal Technician SW 3-6	TS3-6SW	\$ 53.20	Traffic Signal Technician IG 3-6	TS3-6IG	\$ 57.46
Traffic Signal Technician Test	TS3T	\$ 15.03	Traffic Signal Technician Answer Key	TS3TAK	\$ 21.02
3rd Year Traffic Signal SW Kit	TS3SWK	\$ 293.69	3rd Year Traffic Signal IG Kit	TS3IGK	\$ 388.69

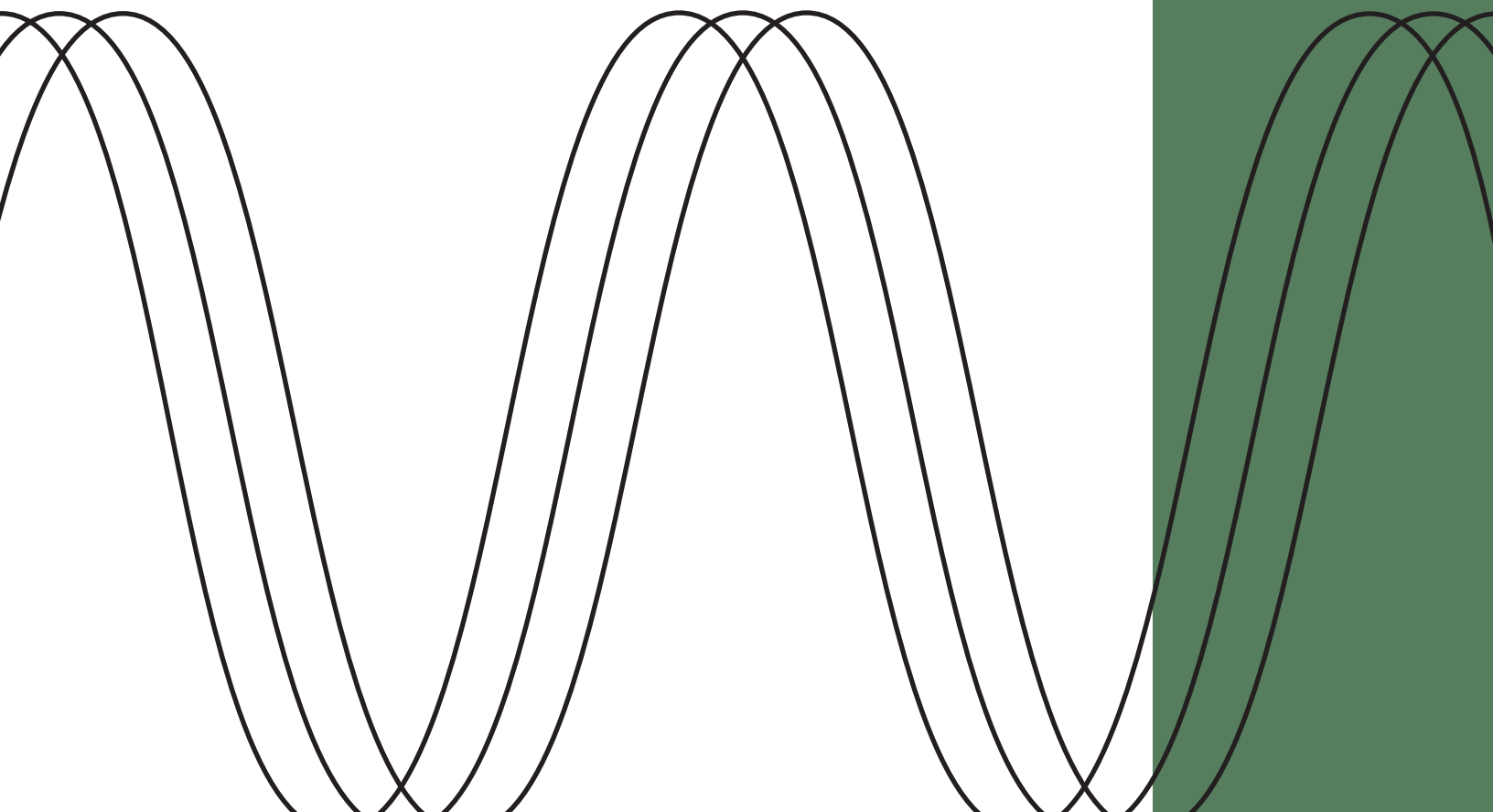
Student Workbook & Instructor Guide Kit Complete

The kit complete includes all of the contents of either the Student Workbook kit or Instructor Guide kit plus these items.

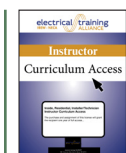
Item Title	Item Number	Price
Advance Ballasts Pocket Guide	J258.H	\$ 8.87
CCTV Surveillance Video Practices	S404	\$ 82.28
Reference Guide to Fiber Optics	S480	\$ 71.84
W4IKS (Wapiti) Manual	S478	\$ 43.47
AC Theory	S641	\$ 71.84
3rd Year Traffic Signal SW Kit Complete	TS3SWKC	\$ 479.97
3rd Year Traffic Signal IG Kit Complete	TS3IGKC	\$ 633.35



Topics



ACCESS FOR INSTRUCTORS



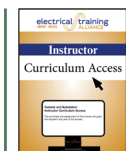
Inside, Residential, Installer/Technician Instructor Curriculum Access (ICA)

IRITICALM.1 \$ 187.78

The purchase and assignment of this license will provide the recipient one year of full access to the apprenticeship courses and accompanying resources for the Inside, Installer/Technician and Residential curriculums. For a listing of all of the courses that come with this license please go to <https://tinyurl.com/mpu4prz>. The list updates as new content is revised, added, or replaced for the

apprenticeships. This license can only be assigned to instructors.

*The design of this license is to support giving an instructor full access to all of the apprenticeship curriculum. If full access to all content is not needed, then purchasing individual course licenses may be desired.



Outside and Substation Instructor Curriculum Access (ICA)

OSICALM1 \$ 157.33

The purchase and assignment of this license will provide the recipient one year of full access to the apprenticeship courses and accompanying resources for the Outside and Substation curriculums. For a listing of all of the courses that come with this license please go to <https://tinyurl.com/4t8f9j45>. The list updates as new content is

revised, added, or replaced for the apprenticeships. This license can only be assigned to instructors.

*The design of this license is to support giving an instructor full access to all of the apprenticeship curriculum. If full access to all content is not needed, then purchasing individual course licenses may be desired.

APPRENTICESHIP ORIENTATION

Constructing Your Future - CML

J200LM.J1

Student:\$ 11.71

Prerequisite(s): None

This course provides an overview of what to expect from construction trades apprenticeship programs. The course starts out with a discussion of the skills, interests, and mindset that will best serve an apprentice in a construction trades apprenticeship program. The course continues with an overview of the characteristics and benefits of different apprenticeship programs, the different construction trades, and the career paths that can open to the successful apprentice. The course then covers what it means to dress

professionally, the hazards of drug and alcohol abuse in the construction industry, the impact of your online image and cell phone use, considerations related to personal financial management, the importance of developing a safety mindset, and the many hazards that can be present in construction work and how to mitigate or avoid them. Finally, the course concludes with an exploration of the personal skills and attributes that will help an apprentice succeed in any apprenticeship program.



Introduction to Apprenticeship - CML

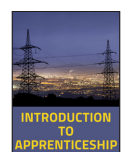
J200LM.J2

Student:\$ 10.77

Prerequisite(s): Constructing Your Future

This course provides a complete overview of the apprenticeship program, from the history of the IBEW and the structure of NECA to the responsibilities of the Electrical Worker. The course starts out with the necessary requirements to be prepared for apprenticeship, including an in-depth discussion of

the importance of personal financial management. The course then begins to cover topics associated with being a Union member, including American Labor History, the history and structure of the IBEW and of NECA, and the benefits and rewards of the IBEW-NECA partnership.



IBEW Orientation

J200LM.J3

Student:\$ 11.07

Prerequisite(s): Introduction to Apprenticeship

This course will cover topics associated with being a Union member. It covers organizational topics such as Becoming Familiar with the IBEW Constitution, Understanding Local

Union By-Laws, and Parliamentary Procedure and How it Works. The course will also inform on the COMET program.



Orientation, Level I - 2nd Ed.

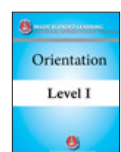
J200LM.I1a

Student:\$ 11.07

Prerequisite(s): None

This course will give an overview of the Apprenticeship program from the history of the IBEW and structure of

NECA to the goals and responsibilities of the Electrical Worker.



Orientation, Level II - 2nd Ed.

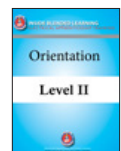
J200LM.I2a

Student:\$ 10.13

Prerequisite(s): Orientation, Level I

This course expands on topics associated with the Apprenticeship Program that were covered in Orientation, Level I. The course starts out with the important topic of Avoiding the Hazards of Drug Abuse and then begins to cover topics associated with being an IBEW Member. It covers organizational topics such

as Becoming Familiar with the IBEW Constitution, Understanding Local Union By-Laws, and Parliamentary Procedure and How it Works. Finally, Understanding American Labor History is a valuable attribute in establishing Pride in Your Industry.



Orientation, Level III - 2nd Ed.

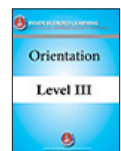
J200LM.I3a

Student:\$ 11.07

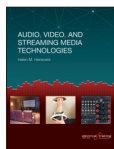
Prerequisite(s): Orientation, Level II

This course prepares the Electrical Worker for life after the apprenticeship. Topics include NEBF, After Apprenticeship, Soon to be a Journey-Level

Worker, Success, Motivation and Leadership, NLRB, Unemployment, and The Realities of Construction.



AUDIO, VIDEO, AND STREAMING MEDIA TECHNOLOGIES



Audio, Video, and Streaming Media Technologies Textbook

S107 \$ 51.38

S107E \$ 51.38

Technologies used in residential dwellings and light commercial buildings continue to be developed at an unbelievable rate. For this very reason, technicians must have the resources available to become familiar with the latest technologies in order to be successful installing these systems. This textbook provides detailed information on the latest audio, video, and streaming

technologies, and prepares technicians installing these systems for success. The technician will be prepared for the design, installation, troubleshooting, and documentation of audio, video, and streaming technologies that are commonly installed in residential and light commercial environments.



Audio, Video, and Streaming Media Technologies

J167LM

Student: \$15.31

Prerequisite(s): **Inside** - Structured Cabling, Level I or Structured Cabling - CML
Installer/ - Structured Cabling, Level I or Structured Cabling - CML
Technician
Residential - Cabling, Networking, and Communication Technologies

The audio, video systems of today can be very complicated to install and configure properly then take into account the room acoustics. Fortunately, the technologies that support these entertainment systems are not difficult to learn if taken one-step at a time. This course introduces audio signal and video

signal fundamentals, the properties of sound, sound reproduction devices, video display technologies, home theater systems, cabling and connections, distributed audio and distributed video systems, planning, testing and troubleshooting, and streaming media technologies.

BUILDING AUTOMATION:

CONTROL DEVICES AND APPLICATIONS

Building Automation: Control Devices and Applications Textbook

S518 \$ 74.27

S518E \$ 74.27

This textbook covers operation, signaling, and functions of the common sensors, actuators, and other control devices used in building automation systems for commercial buildings. Each system is explained to provide clarity on the function and application of each

device. The student will be introduced to the common applications of these control devices, including the integration of multiple building systems into a sophisticated building automation system.



Building Automation 1: Control Devices and Applications, Level I

J238LM.H1

Student: \$ 8.34

Prerequisite(s): 4,000 Hours of OJT

Building Automation 1: Control Devices and Applications Level I explains how building systems, such as HVAC, lighting, and electrical systems, can communicate information through a network of intelligent control devices. Emphasis is placed on these control devices and how they work together in common automation scenarios. Topics covered include the operation, signal

types, and functions of the sensors, actuators, and other control equipment used in automated systems in commercial buildings. The course is organized by building system, and the operation of each system is explained to clarify the function and application of each control device. **PPTs included.**



Building Automation 1: Control Devices and Applications, Level II

J238LM.H2

Student: \$ 8.34

Prerequisite(s): Building Automation 1, Level I

Building Automation 1: Control Devices and Applications Level II explains how building systems, such as HVAC, plumbing, fire protection, access control, and security systems, can communicate information through a network of intelligent control devices. Emphasis is placed on these control devices and how they work together in common automation scenarios. Topics

covered include the operation, signal types, and functions of the sensors, actuators, and other control equipment used in automated systems in commercial buildings. The course is organized by building system, and the operation of each system is explained to clarify the function and application of each control device. **PPTs included.**



Building Automation: Control Devices and Applications Applications Manual

J238AMIG.H \$ 53.21

J238AMSW.H \$ 40.54

This applications manual takes a very detailed look at real world applications of each system. This exploration of each system includes mounting requirements,

potential pitfalls, physics of the measured variable and wiring requirements including diagrams and points lists.



BUILDING AUTOMATION:

SYSTEM INTEGRATION WITH OPEN PROTOCOLS



Building Automation: System Integration with Open Protocols Textbook

S519 \$ 74.27

S519E \$ 74.27

This textbook builds on the foundation of laid by *Building Automation: Control Devices and Applications* to provide the information necessary to control devices that communicate over a network using open protocols. The

textbook focuses on the two leading open protocols, LonWorks® and BACnet®. The textbook is very scenario and application driven to enhance the ability of the student to comprehend the concepts presented.



Building Automation 2: System Integration with Open Protocols, Level I B

J239LM.I1B

Student: \$ 8.33

Prerequisite(s): Building Automation 1, Level I

Building Automation 2: System Integration with Open Protocols, Level IB introduces concepts of automated electronic controls and network communication and then details the BACNet for wired networks. The protocol

system is thoroughly described with information about installation, configuration, operation, maintenance, and troubleshooting. **PPTs included.**



Building Automation 2: System Integration with Open Protocols, Level I L

J239LM.I1L

Student: \$ 8.34

Prerequisite(s): Building Automation 1, Level I

Building Automation 2: System Integration with Open Protocols, Level IL introduces concepts of automated electronic controls and network communication and then details the LonWorks for wired networks. The protocol

system is thoroughly described with information about installation, configuration, operation, maintenance, and troubleshooting. **PPTs included.**



Building Automation 2: System Integration with Open Protocols, Level II

J239LM.I2

Student: \$ 8.34

Prerequisite(s): Building Automation 2, Level I L or Level I B

The capstone Building Automation course is a series of examples that illustrate the design, installation, and configuration of each protocol in various scenarios.

The final chapter discusses the future of building automation, including trends in the industry, networking, protocols, and control strategies. **PPTs included.**

BUILDING INFORMATION MODELING



Introduction to Building Information Modeling (BIM) - CML

J909LM

Student: \$ 37.01

Prerequisite(s): None

The Introduction to Building Information Modeling (BIM) course provides an overview of both the concept of BIM and the process of how it is commonly used in the construction industry. By having a working understanding of how BIM is applied to common construction settings, it is much easier to see and evaluate the benefits of using the process to improve the efficiency of constructing

a building in ways such as increasing productivity and decreasing the amount of rework on a project. The BIM process utilizes three-dimensional models of the building to gain deeper insights to the final product prior to it being built physically. BIM is essentially building a building on a computer screen before it actually built, a process commonly referred to as Virtual Design and Construction.

CABLE SPLICING

Cable Splicing and Underground Distribution, 1st Year, Level I

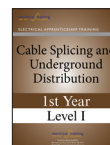
UD1-1LM

Student: \$ 14.16

Prerequisite(s): None

The Level I course begins with a lesson that instructs the student on how to study the course and gives helpful pointers on negotiating the course materials. Following lessons present the responsibilities of the apprentice and the advantages of an IBEW/NECA apprenticeship, teach the student about safety and

hazard awareness, and discuss how to identify and care for basic tools of the trade. The student will also receive an introduction to OSHA. The last lessons cover topics such as fall protection, climber cutouts, climbing poles, and pole top and bucket rescues.



Cable Splicing and Underground Distribution, 1st Year, Level II

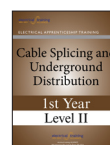
UD1-2LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 1st Yr, Level I

The Level II course covers a wide variety of topics. Students will learn how to avoid sexual harassment and the dangers of drug use. They will also gain a thorough understanding of the history of the IBEW and NECA. Further lessons cover the care and use

of rubber gloves and protective line devices. The apprentice will learn how to work in a confined space and how to work with powered equipment and will review safety topics and hand signals.



Cable Splicing and Underground Distribution, 1st Year, Level III

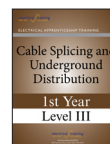
UD1-3LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 1st Yr, Level II

The Level III course begins with the apprentice learning how to work with wood poles and energized circuits. The following lessons cover basic mathematical concepts, including an introduction to whole numbers,

fractions, decimals, and percentages. Lessons then transition to electron theory and electrical units before moving on to electrical theory.



Cable Splicing and Underground Distribution, 1st Year, Level IV

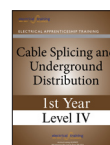
UD1-4LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 1st Yr, Level III

The Level IV course begins by teaching the apprentice about ropes, knots, hitches and splices, ladders, powered equipment safety pertaining to underground, and digger derricks. The following lessons cover hazardous communications and personal protective

equipment. To be successful in this industry, a splicer/URD technician must be knowledgeable about mathematics and Ohm's Law; as such, a review of these topics is included in the final lessons of this course.



Cable Splicing and Underground Distribution, 1st Year, Level V

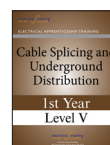
UD1-5LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 1st Yr, Level IV

The Level V course opens with lessons on the use and operation of blocks, slings, and chokers as well as various rigging tools and equipment. Other lessons

in the course cover voltage, resistance, current, and series and parallel circuits.



Cable Splicing and Underground Distribution, 1st Year, Level VI

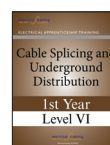
UD1-6LM

Student: \$ 14.16

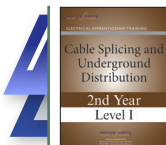
Prerequisite(s): Cable Splicing and Underground Distribution, 1st Yr, Level V

The Level VI course begins with the principles of magnetism and the electric system as well as rotation proportions and the electric system. The student will then learn about wire size, types, and characteristics

of cable. The course also covers methods of insulating and isolating, along with good housekeeping. The course closes with discussions on combination circuits.



CABLE SPLICING



Cable Splicing and Underground Distribution, 2nd Year, Level I

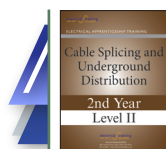
UD2-1LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 1st Yr, Level VI

Level I opens with lessons on two-way radios, underground systems, and excavation and shoring. Laying conduit and pulling cable are also covered. The following lessons touch on manhole construction, cable types and pulling, and underground systems.

This course also has discussions on grounding and protective grounds, taking a line out of service, and lockout/tagout applications. The course closes with the National Program and how it was started.



Cable Splicing and Underground Distribution, 2nd Year, Level II

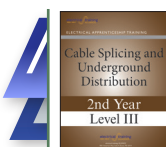
UD2-2LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 2nd Yr, Level I

Level II opens with lessons that cover organizational topics such as the IBEW Constitution, Parliamentary Procedure and How it Works, and Understanding Local Union Bylaws. It then covers Professional Personal

Conduct, Absenteeism, Working Outdoors, and Emergency Response. The course closes with lessons on Reviewing DC Theory, Fundamentals of Alternating Current, and An Introduction to 3-Phase Systems.



Cable Splicing and Underground Distribution, 2nd Year, Level III

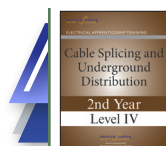
UD2-3LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 2nd Yr, Level II

Level III opens with lessons on Understanding How the DC Generator Works, and Understanding the Design and Function of AC Generators. Level III

covers test instruments and then focuses transformer construction, characteristics, operation, polarity, tap changers, and installation.



Cable Splicing and Underground Distribution, 2nd Year, Level IV

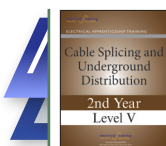
UD2-4LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 2nd Yr, Level III

Level IV opens with the student working with single-phase transformer connections and understanding hazards when working with transformers, including load checks and protection. This course will also teach students about vectors. Successful Qualified Electrical Workers must possess a strong knowledge of math. In

this course the student will take lessons on Working with Prefixes and Powers of 10, The Customary and Metric Systems of Measurements, The Circle, Area and Volume, and Measuring and Drawing Angles, as well as Right Triangles.



Cable Splicing and Underground Distribution, 2nd Year, Level V

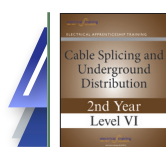
UD2-5LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 2nd Yr, Level IV

Level V opens with blueprint lines, blueprint fundamentals, electrical drawings and diagrams, and civil drawings. The course then moves into staking

sheets and stakes and measuring and leveling devices. This course wraps up with an introduction to Inductance and a lesson on voltage drop.



Cable Splicing and Underground Distribution, 2nd Year, Level VI

UD2-6LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 2nd Yr, Level V

Level VI opens with metering and overvoltage protection. This course will also cover phase sequence and backfeed, as well as fault indicators. The course wraps up with an introduction to medium-voltage

cable safety, materials and tools used, and cable preparation.

CABLE SPLICING

Cable Splicing and Underground Distribution, 3rd Year, Level I

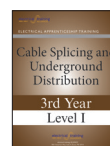
UD3-1LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 2nd Yr, Level VI

Level I focuses on cable splicing. Topics covered include terminations, elbows, grounding and pulling cables, insulation testing, and manufacturers' kits. Students will learn how to use a megohmmeter and

gain experience in cable fault locating, underground troubleshooting, and confined spaces. The student will end this course with a lesson on flagging, signs, and barricades lessons.



Cable Splicing and Underground Distribution, 3rd Year, Level II

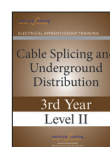
UD3-2LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 3rd Yr, Level I

Level II continues with lessons on flagging, signs, and barricades, followed by lessons on taking pride in the industry, an introduction to the COMET program,

and productivity. Students will then learn about distribution circuits, alternating current, inductance, and capacitors.



Cable Splicing and Underground Distribution, 3rd Year, Level III

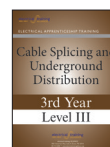
UD3-3LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 3rd Yr, Level II

Level III begins with lessons on transformers, including 3-phase voltages and connections, followed by single-phase connections. Students will also learn about troubleshooting 3-phase banks and will receive a lesson on labor-management relations. In the last half

of Level III, students will begin personal protective grounding training. Topics covered include body currents, basic electric circuits, grounding history, equipotential zone grounding, equipment selection, and installation of grounds.



Cable Splicing and Underground Distribution, 3rd Year, Level IV

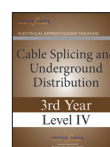
UD3-4LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 3rd Yr, Level III

Level IV continues personal protective grounding training with lessons on step and touch potential, induced voltage and multiple grounds, truck grounding, underground distribution grounding, grounding in substations, and grounding during

construction. The next few lessons are on testing ground resistance and lightning protection. Finally, the student will receive instruction on applying rubber protective devices, primary metering, and single-phase revenue metering.



Cable Splicing and Underground Distribution, 3rd Year, Level V

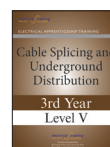
UD3-5LM

Student: \$ 14.16

Prerequisite(s): Cable Splicing and Underground Distribution, 3rd Yr, Level IV

Level V begins with substation construction. Other topics included in this course are fuse principles, reclosers and sectionalizers, and fault current.

The student will then move into economics of unemployment, motivation and leadership, and the National Electrical Benefit Fund.



Cable Splicing and Underground Distribution, 3rd Year, Level VI

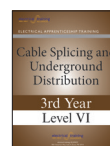
UD3-6LM

Student: \$ 14.16

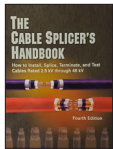
Prerequisite(s): Cable Splicing and Underground Distribution, 3rd Yr, Level V

Level VI begins with fiber optics training, followed by lessons in alternative energy sources and high voltage lines. The course ends with lessons on what to expect

after apprenticeship, followed by foremanship and Journeyman responsibilities.



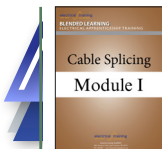
CABLE SPLICING



The Cable Splicer's Handbook

S095 \$ 83.10

This textbook goes beyond just splicing. It shows the tools and supplies used by cable splicers, how to install connectors, and explains essential safety precautions when working on underground cables. It covers several ways to install medium voltage underground cables, explains how cables can be damaged during installation, and how to test and maintain cables.



Cable Splicing Module I - Introduction to Cable Splicing

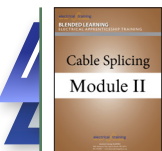
J171LM

Student:\$ 17.48

Prerequisite(s): None

This is the first module in a six-module, hands-on cable splicing series. This module covers hand-taped splices and terminations. The course presents information on several types of cable splices, and different specifications are examined. Different cable types, tools used in splicing, different insulation types, and the various types of insulation shields are covered. The importance of proper cable preparation is explained in detail. This module reviews many theory areas that will benefit all those doing medium voltage work and prepare those who will take the National Cable Splicing Certification Board (NCSCB) written examination.

Cable Splicing Tool Kit - See Page 112 for more information.



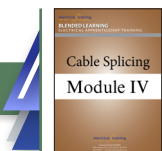
Cable Splicing Module II - Hand-Applied Tape

J172LM

Student:\$ 17.48

Prerequisite(s): Cable Splicing Module I

Module II covers several methods of terminating cable, Tee splices, and protective grounds. The hands-on exercises include the construction of 5kV and 15kV terminations, 5kV and 15kV Tee splices, tying various knots, and splicing rope. This module is also a great preparation for the National Cable Splicing Certification Board's (NCSCB) hand taped splicing certification practical examination.



Cable Splicing Module IV - Termination and Splice Kits - 2nd Ed.

J174LM.A

Student:\$ 17.22

Prerequisite(s): Cable Splicing Module I

Module IV covers termination and splice kits. The course presents information on different types of cable splices and termination kits used in the field today. This module reviews many theory areas that will benefit all those doing medium voltage work and prepare those who will take the National Cable Splicing Certification Board (NCSCB) written examination.



Terminations & Splices Theory - Practice

S094 \$ 15.19

This handbook is to assist the user of electric cables, splices, and terminations, and as a reference to those engaged in the planning, installation and maintenance of electrical cable systems.

NEW

CABLING TECHNOLOGIES

Cabling, Networking, and Communication Technologies Textbook

S109 \$ 52.16

S109E \$ 52.16

Now more than ever, technology is advancing at an unbelievable rate. Its use, and our dependence on it, have become a critical part of everyday life, both at home and at work. This has created the necessity for a new skill set for the electrician and limited-energy worker.

Cabling, Networking, and Communication Technologies lays the foundation for the installation, integration, and troubleshooting of power-limited systems. First, a brief description of electrical characteristics, the fundamentals

of installation for structured cabling, and explanations of necessary tools and standards will get you started. Then, testing, troubleshooting, and an informative chapter explaining basic networking will have you ready to install the devices and commission the system.

The last chapter, Skills for Success, will lead any Electrical Worker down the path to success with their contractor, co-workers, and career.



Cabling, Networking, and Communication Technologies

J191LM

Student: \$ 13.05

Prerequisite(s): DC Theory IV or Electrical Theory 1: Direct Current

Now more than ever, technology is advancing at an unbelievable rate. Its use, and our dependence on it, have become a critical part of everyday life, both at home and at work. This has created the necessity for a new skill set for the electrician and limited-energy worker.

The *Cabling, Networking, and Communication Technologies* course lays the foundation for the installation, integration, and troubleshooting of power-limited systems. First, a brief description of electrical

characteristics, the fundamentals of installation for structured cabling, and explanations of necessary tools and standards will get you started. Then, testing, troubleshooting, and a section explaining basic networking will have you ready to install the devices and commission the system.

The last lesson, Skills for Success, will lead any Electrical Worker down the path to success with their contractor, co-workers, and career.



CODE-RELATED MATERIALS



Significant Changes to the *NEC* - 2023 Textbook

S1153 \$ 57.20

S1153E \$ 57.20

The *National Electrical Code® (NEC)* is the most widely used electrical standard in the United States and is being adopted more globally as electrical codes and standards evolve internationally. This authoritative text is written by leading industry experts to inform electrical contractors, Electrical Workers, maintenance personnel, inspectors,

engineers, and systems designers of the most significant revisions and new requirements in the 2023 *NEC*. Coverage of changes provides readers with insight and detailed information about the reasons for the change and how these changes impact electrical installations and one's daily work and business operations.



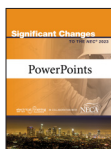
Significant Code Changes to the 2023 *NEC* - CML

J1153LM.M

Student: \$ 41.69

The *Significant Code Changes to the 2023 NEC* course is intended to be an asynchronous course for the user and contains most significant revisions and new requirements associated with the 2023 NFPA 70 *NEC*. Throughout the course, you will learn about the updates of the 2023 *NEC* by reviewing the change summary, significance of the

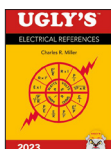
change, and Code language, and by taking knowledge checks on the changes throughout the course. The course has seven topics that each cover Code articles and their associated changes. Also included in the course is a course completion certificate and a survey.



Significant Changes to the *NEC* 2023 PowerPoints course

J1153LM.P \$ 96.35

Every change and illustration in the *Significant Changes to the NEC* textbook is contained in the presentation.



Ugly's Electrical References, 2023 Edition

S1154 \$ 16.20

Ugly's Electrical References, 2023 Edition is designed to be used as an on-the-job reference. Used worldwide by electricians, engineers, contractors, designers, maintenance workers, instructors, and the military; Ugly's contains the most commonly required electrical information in an easy-to-read and easy-to-access

format. Ugly's presents a succinct portrait of the most pertinent information all electricians need at their fingertips, including: mathematical formulas, *National Electrical Code* tables, wiring configurations, conduit bending, voltage drops, and life-saving first aid procedures.



2023 *NEC*

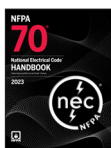
S1150 \$ 123.17

Be prepared to comply in the new era for electrical safety. The *NEC* establishes requirements for electrical wiring and equipment in virtually all buildings. The world's most important document is revised based on new technology and industry needs. Users will

see greater consistency in grounding and bonding terminology, shading behind revised text to see what is new at a glance, and identifiers at the top of each page in the *NEC* for speedier referencing.



S1055 2020/2023 *NEC* Tabs \$ 10.04



2023 *NEC* Handbook

S1152 \$ 225.25

The most valuable reference for *NEC* users provides the technical support required to comply efficiently, avoid violations, and keep electrical installations on track with the 2023 *National Electrical Code*.

CODE-RELATED MATERIALS

Electrical Systems 2023 NEC

S1170 \$ 70.62

S1170E \$ 70.62

Electrical Systems is designed for use by Journeyman and master electricians, inspectors, contractors, and others in the electrical trade. This authoritative textbook is recognized in the industry for providing a comprehensive overview of the *National Electrical Code*®. Concise text and descriptive illustrations cover the *Code* and its application to wiring methods and materials, conductors and overcurrent protection devices, branch circuits and feeders, grounding, transformers, services, special locations, calculations, and renewable energy systems. Important changes in the *NEC*® are covered and identified.

**In our updated *Code*-related Computer-Mediated Learning (CML) courses (such as *Code*, *Standards*, and *Practices 1, 2, 4*, *Code Calculations*, etc.), the *Electrical Systems 2023 NEC* Textbook is listed as required material and included in the standard apprentice kits. However, because there are no specific activities or

lessons designed in the course that require the use of the reference, the decision to include this textbook in your program's apprentice kits remains at your discretion. Despite this option, we advocate for the inclusion of the *Electrical Systems 2023 NEC* Textbook due to its significant educational value. This textbook stands out for its comprehensive exploration of the *National Electrical Code*® (*NEC*®), including vital updates that are imperative for staying current with industry standards and practices. It serves not just as a text but as a bridge connecting theoretical knowledge with real-world application, making it an excellent tool for both instructors and students alike. By engaging with this resource, instructors can foster an interactive and practical learning environment in the classroom, thereby enhancing the overall learning experience.



Journeyman Electrician's Exam Preparation Based on the 2023 NEC

J151LM.B

Student: \$ 41.69

Journeyman Electrician's Exam Preparation, Based on the 2023 *NEC* is designed to help applicants prepare for the Journeyman Electrician's state or local electrical licensing examinations. This course, in conjunction with the workbook, offers an exam overview, the requirements involved, and preparation strategies. The course is organized in lessons that provide randomized questions from banks, which facilitate efficient exam preparation. These question banks include more than 800 review and

sample licensing exam questions and problems based on *NEC*-related definitions, calculations, and factors associated with specific residential, commercial, or industrial applications along with questions based on general trade knowledge and electrical theory. Complete the course with at least minimum scores to attain a completion certificate, or access randomized quizzes for quick test prep if needed.



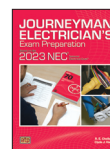
Journeyman Electrician's Exam Preparation Based on the 2023 NEC

J021SW23 \$ 69.86

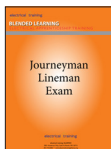
J021SW23E \$ 69.86

Journeyman Electrician's Exam Preparation Based on the 2023 NEC is designed to help individuals prepare for journeyman electrician's licensing exams. This practical text/workbook provides an overview of the exam, the requirements involved, and suggested preparation strategies. Nearly 800 review questions and practice licensing exam questions based on *NEC*® definitions,

calculations, and factors associated with residential, commercial, or industrial applications are included. Answers to all the questions are provided in the answer key located in the back of the text/workbook. This edition also includes 500 additional questions as part of the online learner resources.



CODE-RELATED MATERIALS

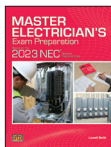


Journeyman Lineman Exam

JLE01

Student: \$ 13.04

The *Journeyman Lineman Exam* is used to assess an applicant's level of knowledge and understanding of Outside Lineman practices.



Master Electrician's Exam Preparation Based on the 2023 NEC

J024SW23 \$ 87.21

J024SW23E \$ 87.21

Master Electrician's Exam Preparation Based on the 2023 NEC is a comprehensive text/workbook designed to help individuals prepare for electrical licensing exams. Easy to follow step-by-step procedures and examples are used throughout the book to help learners find the answers to questions commonly found on electrical licensing exams. References to specific *NEC* articles and tables are cited to help learners become more efficient at locating code information in the *NEC*. The text/workbook contains over 500 practice licensing exam questions. Answers to all of the questions are located in the back of the text/workbook. An additional 500 sample licensing exam questions are provided as part of the online learner resources.

CODEOLOGY

Applied Codeology Textbook

S01723 \$ 56.72

S01723E \$ 56.72

Many new users of the *National Electrical Code (NEC)* are unfamiliar with and overwhelmed by the structure and the massive amount of information contained within it. However, the *NEC* has a logic that has been in place for many years. After the Electrical Worker has gained fundamental understanding of this structure through the study and application of *Codeology*, the *NEC* becomes much easier to navigate. The *Applied Codeology* textbook is an invaluable resource for new learners being introduced to the

layout of the *NEC*, those that have been using the *NEC* but are preparing for a *Code* exam, and anyone looking to improve their skills to efficiently locate *NEC* requirements. *Applied Codeology* is not necessarily about applying the requirements within the *NEC*, but instead about learning and applying an efficient method to categorize and locate requirements in the *NEC*. The textbook is structured around the “General,” “Plan,” “Build,” and “Use” concepts of the 2023 *NEC*. **PPTs included.**



Applied Codeology, Navigating the 2023 NEC - CML

J207LM.N

Student: \$ 20.26

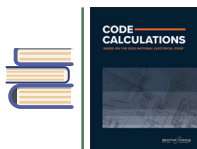
Prerequisite(s): None

The Applied Codeology, Navigating the 2023 *NEC* course will help you use and apply an efficient method to categorize and locate requirements in the *National Electrical Code (NEC)*. Through repetition and thorough

understanding of the “Plan” - “Build” - “Use” concepts, you will gain confidence in using the 2023 *NEC*.



CODE CALCULATIONS



Code Calculations Textbook

S00823 \$ 50.41

S00823E \$ 50.41

The 2023 edition of *Code Calculations* solves math-related Code topics such as ampacity, conductor terminations, continuous and noncontinuous loads, box size, voltage drop, tap rules, motor installations, transformers, building loads, and electrical systems. The textbook is intended for a variety of Code users such as Apprentices, Journeyworkers, Foremen, Estimators, Project Managers, and Electrical Engineers. Code Calculations provides the necessary skills and

knowledge to achieve a Code-compliant, adequate, and safe electrical installation, and is well suited for Code examination preparation study material.

Code Calculations assists the Code user in understanding and applying the challenging aspects of calculations in the Code. The textbook has been updated and revised to the 2023 *National Electrical Code (NEC®)*.



Fundamental Code Calculations, Based on the 2023 NEC - CML

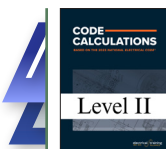
J227LM.N1

Student: \$ 10.41

Prerequisite(s): Code, Standards, and Practices, Level II or Code, Standards, and Practices 2 - CML

Fundamental Code Calculations, Based on the 2023 NEC – CML covers day-to-day conductor sizing, voltage drop, raceway fill, and box fill questions. Completion will equip students for further courses in NEC application and calculations. Students will gain understanding and skill in calculations by repetition

and practice of intermediate steps, building on their knowledge as they progress through the course. This course covers all learning objectives formerly included in Electrical Code Calculations, Level I plus one from Electrical Code Calculations, Level III.



Electrical Code Calculations, Level II, Based on the 2023 NEC

J227LM.M2

Student: \$ 7.65

Prerequisite(s): Electrical Code Calculations, Level I

The Electrical Code Calculations, Level II, Based on the 2023 NEC course focuses on comprehensive training for solving Code-related calculations. This course covers lessons related to determining electrical load

calculations, range and appliance calculations, voltage drop calculations, and multifamily dwelling and residential loads calculations in accordance with the NEC. PPTs included.



Electrical Code Calculations, Level III, Based on the 2023 NEC

J227LM.M3

Student: \$ 7.65

Prerequisite(s): Electrical Code Calculations, Level II

The Electrical Code Calculations, Level III, Based on the 2023 NEC course focuses on comprehensive training for solving Code-related calculations. This course covers

lessons related to calculating cable tray fill, the ampacity of conductors in cable trays, and those for electric welders. PPTs included.



Code Calculations, Complete, Based on the 2023 NEC

J227LM.M

Student: \$ 27.46

Prerequisite(s): None

The course is identified for use outside the apprenticeship. Apprentices will cover these lessons according to the Core and Advanced credited curriculum utilizing other courses. The Code Calculations, Complete, Based on the

2023 NEC course places all topics covered by the Code Calculations Textbook (S00823) in one place. The course is focused on a complete comprehensive training for solving Code-related mathematical issues. PPTs included.

CODE, STANDARDS, AND PRACTICES

Code, Standards, and Practices 1, Based on the 2023 NEC - CML

J231LM.N

Student:\$ 11.82

Prerequisite(s): None

The lessons in Code, Standards, and Practices 1, Based on the 2023 NEC – CML provide an introduction to the NEC and introduce the basics for interpreting the language of the NEC in order to correctly apply its requirements. The focus of this course is on the

provisions of Article 90 and Chapter 1 and will lay the foundation for interpreting the language of the NEC to assist Electrical Workers in becoming more knowledgeable and productive.



Code, Standards, and Practices 1

NEW

Code, Standards, and Practices 2, Based on the 2023 NEC - CML

J232LM.N1

Student:\$ 15.68

Prerequisite(s): Code, Standards, and Practices 1

The lessons in Code, Standards, and Practices 2, Based on the 2023 NEC – CML provide further study into the requirements of Chapters 2 and 3 of the NEC. Topics include branch circuit, feeder, and service requirements

as found in Chapter 2, and Chapter 3 requirements on wiring methods and materials, conductors, raceways and conduit, and cable assemblies.



Code, Standards, and Practices 2

NEW

Code, Standards, and Practices 3, Based on the 2023 NEC - CML

J233LM.N

Student:\$ 19.08

Prerequisite(s): Code, Standards, and Practices 2 and (Electrical Code Calculations, Level I or Fundamental Code Calculations)

Over the course of these lessons you will become familiar with the fundamental concepts of overcurrent protection; the main purpose of overcurrent protective devices (OCPDs) is to protect circuits and equipment from the

effects of harmful overcurrents. You will also learn about common types of OCPDs, such as fuses and circuit breakers; operation and sizing; short-circuit current ratings for panelboards, switchboards, and switchgears; and more!



Code, Standards, and Practices 3

NEW

Code, Standards, and Practices 4, Based on the 2023 NEC - CML

J234LM.N

Student:\$ 10.41

Prerequisite(s): Code, Standards, and Practices 3

This course will introduce you to a variety of topics relating to special occupancies, electrical equipment, and special equipment in Chapter 6 of the NEC.

You will also be introduced to cable tray systems and installation of surface metal raceways.



Code, Standards, and Practices 4

NEW

Code, Standards, and Practices 5, Based on the 2023 NEC - CML

J235LM.N

Student:\$ 10.41

Prerequisite(s): Code, Standards, and Practices 4

You will explore two main topics throughout these lessons. First, you will be introduced to a number of requirements related to service equipment, swimming pools, fountains, and similar installations. Next, you

will develop an understanding of emergency and standby system installation requirements, over 1,000-volt requirements, and requirements for remote-control, signaling, and power-limited circuits.



Code, Standards, and Practices 5

NEW

Code, Standards, and Practices 6, Based on the 2023 NEC - CML

J236LM.N

Student:\$ 19.08

Prerequisite(s): Code, Standards, and Practices 3

This series of lessons will continue discussion around overcurrent protection and hazards, starting with a review of key OCPD concepts. The improper selection and application of overcurrent protection can create electrical problems such as prolonged power outage, fire hazard, shock hazard, arc flash, arc blast, and equipment damage. A properly designed, installed, and

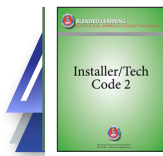
maintained electrical system provides the benefit to customers and worker safety. Exploration of overcurrent protective devices and their application will continue with a series of lessons covering topics such as motor branch circuit and transformer protection, short-circuit current protection, selective coordination, and ground-fault protection of equipment.



Code, Standards, and Practices 6

NEW

CODE, STANDARDS, AND PRACTICES



Installer/Tech Code 2, Based on the 2023 NEC

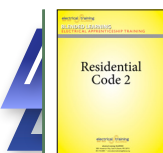
T266LM.M

Student:\$ 17.49

Prerequisite(s): Code, Standards, and Practices 1

The Installer/Tech Code 2 course begins by introducing the principles involved in sizing building wire and then goes on to describe conduit and raceway basics. The course then introduces requirements for cable assemblies and general requirements for wiring methods

and materials. Finally, the course introduces the requirements for remote control, signaling and power limited circuits, fire alarm systems, optical fiber cables and raceways, and communication circuits.



Residential Code 2, Based on the 2023 NEC

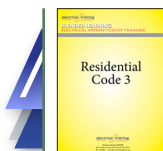
J293LM.M

Student:\$ 10.00

Prerequisite(s): Applied Codeology

The Residential Electrical Worker must have the ability to perform job tasks efficiently and accurately in this highly competitive field. In order to do so, the Residential Electrical Worker must have a working knowledge of residential wiring requirements covered in the *National Electrical Code (NEC)*. This course covers requirements for proper box and conduit body selection, branch

circuit and sizing building wire requirements for dwelling units, conductor ampacity calculations, requirements for cable assemblies, and wiring methods for dwelling units. The course will also cover requirements for switches and receptacles, specialty circuit interrupters, luminaires, metal raceways (EMT and FMC), and requirements for lighting and receptacle branch-circuits.



Residential Code 3, Based on the 2023 NEC

R233LM.M

Student:\$ 10.00

Prerequisite(s): Residential Code 2

This course covers requirements for motors and motor circuits, range load calculations, special purpose outlets, requirements for heating and air conditioning, residential

services, overcurrents, and overcurrent protective devices and ratings

CONDUIT FABRICATION

Conduit Bending and Fabrication Textbook

S495 \$ 73.05

S495E \$ 73.05

This textbook provides a comprehensive overview of conduit bending procedures and methods. Detailed illustrations, step-by-step procedures, and standard applications are used throughout the book. Context includes complete coverage of all aspects of hand

bending tools, conduit layout, mechanical benders, conduit threading tools and procedures and advanced bending techniques. A *Quick Reference Guide* is packaged with this textbook.



Conduit Bending Quick Reference Guide

S495QR \$ 18.69

S495QRE \$ 18.69

This Quick Reference Guide can be used in the field to assist the student.



Conduit System Fabrication 1 - CML

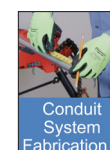
J204LM.I1

Student: \$ 27.11

Prerequisite(s): None

This course is designed to instruct an Electrical Worker in the basic concepts of conduit bending. The first lessons will introduce the common types of conduit, fittings, and tools used in fabricating conduit systems, as well as the equipment and procedures used for cutting and threading conduit. The course will then detail the

procedures for several different methods for hand-bending various angles and bends in metallic conduit. It will close with a discussion of underground conduit installations. Labs, activities, and video resources are included throughout the training and are collected at the end of the course for review.



Conduit System Fabrication 2 - CML

J204LM.I2

Student: \$ 25.82

Prerequisite(s): Conduit System Fabrication 1 - CML

This course builds off of the Conduit System Fabrication 1 - CML course and covers advanced techniques in conduit bending as well as mechanical and hydraulic benders. The first lesson brings our focus to the differences of mechanical and electric benders by showing a side-by-side comparison of the two benders.

Keep moving through the course if you want to learn more on bending larger conduit with the hydraulic bender, and the last lesson tops the course off with advanced bending techniques. Labs, activities, and video resources are included throughout the training and are collected at the end of the course for review.



Conduit Fabrication Mobile Workstation - See Page 112 for more information.

CONSTRUCTION DOCUMENTATION

NEW



Construction Documentation Textbook

S749 \$ 49.99

S749E \$ 49.99

A set of construction drawings provides information needed to accurately visualize the structure that is intended to be built, but it does not provide all of the information that is needed to complete the job. Additional information goes beyond the basics and provides a deeper level of insight into the final product. This additional information starts from the job initialization, when project costing and contractor engagement are sought to carry out the plans to bring a conceptualized building into physical existence,

and continues on and through the building's ongoing lifecycle in the post-construction phase. There are many relationships, such as project delivery methodologies and contracts, and forms of communication between the various project stakeholders that need to be understood and appropriately navigated to successfully complete the type of major undertaking that a construction project represents. All of the additional required information needed to accurately complete the building is provided in the form of construction documentation.

NEW



Construction Documentation - CML

J244LM.J2

Student: \$ 38.37

Prerequisite(s): Construction Drawings and 4,000 Hours of OJT

While construction drawings allow us to accurately visualize a project, construction documentation provides additional information that goes beyond the basics and provides a deeper level of insight into the final product. The Construction Documentation - CML course will explore resources such as riser diagrams, three-

dimensional models, and system-specific drawings to provide a richer context for the details of a project. Additionally, communication between the various project stakeholders must be understood and appropriately navigated to successfully complete the type of major undertaking that a construction project represents.

CONSTRUCTION DRAWINGS

Construction Drawings Textbook

S748 \$ 49.99

S748E \$ 49.99

It is rare that a construction project, no matter the size, does not have some type of Construction Drawing. Whether they are formal drawings created by a team of architects and engineers or a sketch on a piece of scratch paper, construction drawings serve as the common language spoken on jobsites large and small. Since they are so persuasive and ubiquitous, the ability to properly interpret them is a core skill of any worker in the trades. Construction Drawings provides the background necessary to enable workers to both interpret drawings created by others, as well as communicate their own ideas in both a two- and three-dimensional manner.



Construction Drawings - CML

J244LM.J1

Student: \$ 37.80

Prerequisite(s): None

Because nearly all construction projects are defined to a high degree of accuracy through the use of drawings long before the project begins, the ability to read and accurately interpret them is one of the most important skills for Electrical Workers. Construction drawings is a broad term that encompasses not only two- and

three-dimensional drawings, but also 360-degree images and three-dimensional renderings, which can be manipulated by the construction worker to obtain a better understanding of the design intent for the project. The learner will be given the skills to utilize and interpret each of these types of construction drawings.



electrical training ALLIANCE Architectural Scale

S187 \$ 8.11

The 12" triangular scale in Staedtler's student series is ideal for working with construction drawings. Three sides with six different scales feature die-engraved graduations that are easy-to-read and will not rub off.

The triangular scale is made of high-impact polystyrene plastic and includes the following scales (all in reference to 1'): 3/32", 1/8", 3/16", 1/4", 3/8", 1/2", 3/4", 1", 1-1/2", 3", and full scale.



Interpreting Voice-Data-Video System Drawings and Specifications

S190 \$ 65.21

Interpreting Voice-Data-Video System Drawings and Specifications covers the essential interpretation skills needed to safely install and troubleshoot common residential, commercial, and industrial voice-data-and-video (VDV) systems. This book focuses on the fundamentals of interpreting drawings and specifications, including symbols, print elements, and construction documentation, of VDV systems. Practical applications

and procedures are presented throughout the book as they relate to estimating and project management. VDV standards and codes, as well as the grounding and bonding of VDV systems, are covered. Current and future electricians and technicians working with Voice-Data-Video, Fire Alarm, Security, Audio/Visual, Outside Plant, and Premises Distribution will find this book invaluable.



Installer/Tech Drawings and Specifications

J190LM

Student: \$ 18.54

Prerequisite(s): None

The Installer/Tech Drawings and Specifications course covers the essential interpretation skills needed to safely install and troubleshoot common residential, commercial, and industrial voice-data-and-video (VDV) systems. This course focuses on the fundamentals of interpreting drawings and specifications, including symbols, print

elements, and construction documentation, of VDV systems. Practical applications and procedures are presented as they relate to estimating and project management. VDV standards and codes, as well as the grounding and bonding of VDV systems, are covered.



CRANE CERTIFICATION



Crane Certification for the Electrical Industry Textbook

S521 \$ 71.74

S521E \$ 71.74

Crane Certification for the Electrical Industry is an introduction to cranes, federal regulations and industry standards, transporting cranes, safety practices for cranes, setting up and preparing cranes for lifts, making lifts, shutting down and securing cranes, and special

operations, precautions, and tools. This process involves planning a lift, safely making a lift, and shutting down and securing a crane. Each step is critical to maintaining a controlled lift with a proper margin of safety.



Crane Certification Prep Course for the Electrical Industry - 2nd Ed.

J139LM.A

Student: \$ 17.48

Prerequisite(s): None

The Crane Certification Prep Course for the Electrical Industry - 2nd Ed. training program is focused on the safe operation and setup of cranes and how to properly use load charts and attachments. It covers different types of cranes, booms, and carriers in addition to the standards and regulations of cranes. This program is suited for

both the beginner and the experienced operator. This course is also an outstanding resource for the electrical industry crane operation certification. **PPTs included.** *S489 Lineworker Rigging Practices Textbook is also required for this course.



Bucket Truck Awareness

J169LM

Student: \$ 9.98

The Bucket Truck Awareness course is for anyone who may drive and/or operate a bucket truck. It is focused on the safe operation and set-up of bucket trucks.

The course starts with the basic fundamentals and builds into the safety aspects of using the equipment safely on the job.



Cranes and Digger Derrick Awareness

J168LM

Student: \$ 9.98

The Cranes and Digger Derrick Awareness course is suitable for all classifications in the electrical industry. This course is focused on the set-up and safe operation

of cranes and digger derricks. It also covers rigging and rigging equipment. This course is a good prerequisite for the crane certification.b.

Crane Mobile Simulator - See Page 113 for more information.

DIGITAL ELECTRONICS

Digital Electronics, Level I

J240LM.I1

Student: \$ 29.08

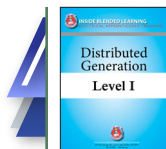
Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current - CML

This course will introduce the fundamental concepts of digital electronic theory. The first lesson gives an introduction to digital electronics, directly followed with lessons that introduce AND Logic, OR Logic, Buffers and Inverters, NAND and NOR Logic, XOR and XNOR

Logic, and finishing up with Digital Switching Circuits - Debouncing. Many of the lessons contained in this course are reinforced with hands-on lab assignments that complement the lesson material.



DISTRIBUTED GENERATION



Distributed Generation, Level I

J229LM.I1

Student:\$ 28.65

Prerequisite(s): AC Theory, Level III or Electrical Theory 3: Alternating Current - CML

The Distributed Generation Level I course will introduce and guide the learner through various forms of alternative power sources that may be used for critical loads within a specific environment. The course starts by covering information technology sites and critical loads. After information technology concepts are understood,

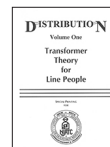
the learner will be introduced to uninterruptible power supplies, infrastructure components, critical UPS system design considerations, installation, and critical systems service. In addition to UPS systems, the learner will be introduced to fuel cell basics, fuel cell applications, and fuel cell installation.

DISTRIBUTION

Distribution Volume I

S036 \$ 22.80

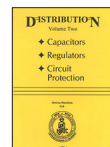
This continuing education text is for all people associated with electrical distribution systems. Students will learn how an apparatus works, how it is connected, and why these connections are made.



Distribution Volume II

S037 \$ 22.80

The purpose of this book is for the continuing education of all people associated with electrical distribution systems and to show how and why the electrical apparatus is installed and its influence on the distribution system.

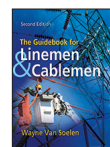


The Guidebook for Linemen and Cablemen

S566 \$ 80.36

The 2nd Edition of *The Guidebook for Linemen and Cablemen* is the most up-to-date reference source for linemen, substation technicians, and anyone interested in the electric transmission and distribution industry. This book features full color text design in a completely redesigned format. It includes practical coverage of the equipment and situations that a lineman is exposed to on a daily basis. The need for safety and training is

highlighted throughout the book, emphasizing safety and efficiency by taking a risk management approach which focuses on minimizing the risk of field injuries and meeting important safety regulations. This new edition also features a glossary with many “need to know” terms. An appendix has been added to provide easy reference for essential charts, tables and formulas.



Live Line Work Practices

S459 \$ 96.18

Live Line Work Practices shows how to handle energized circuits so you can work quickly and safely, without interrupting the service to customers. This complete reference delivers loads of practical, field-tested information. This book describes work practices for transmission (69 kV and above) and distribution (60 kV

and below). Coverage is slanted towards transmission with approximately 60% of the pages on transmission, and 40% on distribution. Over 440 informative illustrations, step-by-step procedures, quick-access tables, and examples.

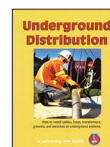


Underground Distribution

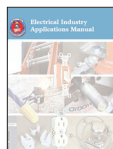
S468 \$ 96.18

For years, the most popular way to deliver electricity was through overhead wires. Construction practices for overhead service is well understood, and this type of service is easier to operate and maintain because equipment is out in the open. Recently, however, more installations have gone underground. Customers prefer underground utilities because electric wires are ugly and underground service is more reliable because there is no

risk of lines going down in storms or poles being hit by motorists. This book covers field-proven practices for pulling cables, splicing cables, terminating cables, fusing lines, grounding equipment, and switching circuits. It explains the special job skills lineworkers and cable splicers need to safely install and maintain underground distribution systems.



ELECTRICAL INDUSTRY



Electrical Industry Applications Manual

J300.K \$ 49.40

J300E.K \$ 49.40

The electrical industry has become increasingly competitive in the past several years. This has increased the need to provide an apprentice workforce that is trained and proficient at performing common electrical installation tasks early on in the apprentice's career. To meet this important need the *electrical training ALLIANCE* has developed the *Electrical Industry Applications Manual*. These applications are intended to fill two needs; First, new apprentices will have the

opportunity to learn basic performance based skills in a lab environment as opposed to the pressures doing so on the job. Secondly, these new training modules will offer hands-on training which in many cases could not be provided in the traditional curriculum delivery method. These applications are not intended to teach theory but could be implemented as an introduction to a theory lesson or discussion.



Electrical Industry Awareness

J301IG.I \$ 54.47

J301SW.I \$ 41.79

The *Electrical Industry Awareness* workbook is intended to be the companion of the *Electrical Industry Boot Camp* workbook. Whereas the *Electrical Industry Boot Camp* workbook provides the essential basic knowledge of electrical materials and tools before the assignment to a contractor for the first time—the Industry Awareness workbook provides the new worker with the knowledge of how to be successful in the workplace. So many times it is thought that knowledge of the electrical trade is all that is needed to be successful in the electrical

industry. But, that is only half of the equation; the worker must also understand what the owner expects while on the jobsite. How to conduct work in a business and professional manner is equally as important as having the electrical knowledge. This workbook includes topics such as: Absenteeism, Productivity, Personal Appearance, Ethical Behavior, Sexual Harassment, Hazards of Drug Abuse, and the IBEW Code of Excellence Program.



Electrical Industry Boot Camp

J398IG.I \$ 81.96

J398SW.I \$ 65.58

The Electrical Industry Boot Camp workbook is an excellent way to prepare a new Inside Apprentice with basic electrical knowledge for their first assignment with an electrical contractor. The workbook contains over 200 pages of information, lessons, and exercises to prepare a new worker for productivity on an electrical job site. It is designed as a 40-hour course that allows the apprentice to become familiar with the basic tools and

materials of the electrical trade. Some of the topics in the Electrical Industry Boot Camp workbook include: hand tools, power tools, boxes & fittings, an electrical systems overview, conductor insulation, wiring devices, how to read a folding ruler, and basic conduit bending. In addition, it outlines safety topics that every worker must know before entering the workplace.



Klein Virtual Boot Camp

J398LM

Student: \$ 28.23

Lessons currently available cover installing a receptacle, installing a switch, identification and proper use of hand tools, materials, and personal protective equipment,

and description, identification of power tools and their use. Awareness of all safety practices is included in all modules.

ELECTRICAL SAFETY-RELATED WORK PRACTICES

Electrical Safety-Related Work Practices Textbook

S1044 \$ 62.07

S1044E \$ 62.07

The 2024 edition of the Electrical Safety-Related Work Practices textbook covers electrical safety requirements and safety-related work practices of OSHA and the National Fire Protection Association electrical safety in the workplace standard, NFPA 70E. Chapters explore

safe work practices and methods to determine the arc flash PPE required to comply with NFPA 70E and the techniques that can be applied to significantly reduce or eliminate electrical hazards.



Electrical Safety-Related Work Practices, Based on the 2024 70E - CML

J444LM.N

Student: \$ 74.97

Prerequisite(s): None

Electrical Safety-Related Work Practices - CML is designed to walk the learner through the basics of electrical safety-related work practices. Utilizing a series of questions based on the learning objectives of each lesson, the course is intended to help the learner better understand electrical safety culture, electrical hazards, lockout and tagout, fault current calculation basics, and the definition of an electrically safe work condition. It also covers a number of the requirements

related to work involving electrical hazards such as when energized work is justified, what is required when justified energized electrical work is permitted, and the requirements for the selection and use of personal and other protective equipment as well as the basics of identifying overcurrent protective devices and application of related requirements and informational notes.

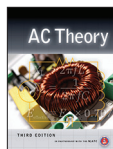


NFPA 70E

S35924 \$ 127.39 **Standard**



ELECTRICAL THEORY



AC Theory Textbook

S641 \$ 71.84

S641E \$ 71.84

This book begins where the *DC Theory* textbook leaves off. Beginning with an introduction to the elements of producing alternating current (AC), including magnetism, conductors, relative motion, and sine wave measurements, this book adds the concepts of resistive, inductive, and capacitive effects as they interact in series, parallel, and combination circuits. These

interactions in basic to complex AC circuits are taught using basic algebra, trigonometry, and vector math. The book takes an uncomplicated approach to explaining advanced AC topics such as filters, resonance, and power factor and the basic applications of AC theory including AC generators, motors, and transformers.

NEW



Electrical Theory 2: AC Systems - CML

J103LM.M

Student: \$ 13.98

Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current - CML

This course begins with a review of foundational concepts in electrical theory, covering sources of electricity, electron flow, circuit characteristics, and materials classification. The subsequent lessons introduce content focused on applying DC theory, a comprehensive lesson on vectors and how they will apply to AC theory, and elements of AC generation, preparing learners for more advanced studies

in AC Theory. The final lesson serves as a library, housing all videos and resources used throughout the course. Through practical exercises, theoretical discussions, and supplementary resources, participants gain the knowledge and skills necessary to further their exploration in AC theory.

NEW



Electrical Theory 3: Alternating Current - CML

J203LM.M

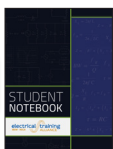
Student: \$ 81.19

Prerequisite(s): (DC Theory, Level IV or Electrical Theory 1: Direct Current - CML) and Electrical Theory 2: AC Systems - CML

This AC Theory course offers a comprehensive exploration of alternating current, commencing with a thorough review of foundational concepts from DC theory and vectors. Participants delve into the effects of inductors in circuits and learn methods for calculating component values in series RL circuits. Similarly, capacitors and their effects, along with calculations in series RC circuits, are extensively covered. Subsequently, the course transitions to the combined concepts of LC and RLC series configurations before addressing parallel configurations

with RL, RC, LC, and RLC circuits. Following a detailed examination of series and parallel configurations individually, participants engage in a comparative analysis between series and parallel RLC circuits, culminating in a thorough circuit analysis of combination RLC circuits. Finally, learners are introduced to devices operating on these principles, with the concluding lessons serving as a repository of videos and resources, as well as supporting labs for simulator and hands-on circuit practice.

NEW



Student Notebook 2

N203 \$ 8.63

ELECTRICAL THEORY

DC Theory Textbook

S640 \$ 71.84

S640E \$ 71.84

Readers are introduced to the fundamentals of electricity and DC circuits. In-depth coverage of Ohm's Law and its relation to voltage, current, resistance, and power is presented. Later chapters examine DC parallel circuits, DC combination circuits, magnetism and generators,

and DC analysis tools that Electrical Workers will find invaluable in analyzing and understanding more complex circuits likely to be encountered on the job. Although based on DC circuits, the information supplied in this book will apply to alternating-current (AC) circuits as well.



Electrical Theory 1: Direct Current - CML

J202LM.M

Student:\$ 76.09

Prerequisite(s): None

This course covers the electrical theory needed to work with and analyze basic Direct Current (DC) electrical circuits. Beginning with the language and component descriptions of the items that make up a common DC electrical circuit, this course then methodically covers how to analyze series, parallel, and finally combination (series-parallel) DC circuits. With the knowledge gained in being able to calculate component and total values for these circuit connections, the course then introduces applications of DC circuits, magnetism, electromagnetism, and electrical generation. Each lesson

is structured with an intro to the topic, video training, extensive practice, and notebook and success check-ins to support building confidence in learning the skill of analyzing DC circuits. Learners will navigate through the course by showing proficiency within each topic and will have plenty of opportunity to practice each new skill before progressing to each successive topic. Final lessons in the course include a video and resource library for quick access to review all training components, and a lab area for both simulator and hands-on circuit practice.



Student Notebook 1

N202 \$ 8.63



ELECTRIC VEHICLE

Electric Vehicle Charging Systems (EVCS-17) - 2nd Ed. w/2020 NEC Supplement (Approved for EVITP)

J138LM.B

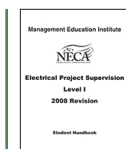
Student:\$ 76.85

This course serves as an instructional primer for the Electric Vehicle Infrastructure Training Program (EVITP) Certification Exam. The course provides an introduction of charging products and associated equipment on the market today. Electrical Workers completing this training

go to work with the ability to implement best practices in areas such as charging station equipment, infrastructure site assessment, load calculation, installation, commissioning, and troubleshooting.



NECA ELECTRICAL PROJECT SUPERVISION TEXTBOOK (EPS)



Electrical Project Supervision Program Level 1

NEPS01 \$ 53.20

This course is an introduction to the skills a field supervisor needs to be successful. Topics include: cost realities, team building fundamentals, communicating with the crew, jobsite documentation, EEO laws, safety

fundamentals, contract fundamentals, tool and material management, understanding the estimate, scheduling fundamentals, bar charts, and understanding human nature and the basic elements of motivation.



Electrical Project Supervision Program Level 2

NEPS02 \$ 53.20

This course builds on the previous level to further identify the skills a field supervisor needs to be successful. Topics include: profit realities, team building across discipline, the art of listening, customer relations, project documentation, preventing harassment in the workplace,

safety fundamentals, contracts, first run studies, procurement, hazard communications, tool and material management, managing costs, and understanding network schedules.



Electrical Project Supervision Program Level 3

NEPS03 \$ 53.20

This course builds on the previous level to further identify the skills a field supervisor needs to be successful. Topics include: business realities, building the project team, networking, negotiating, external communication, evaluating performance, discipline, discharge, using the contract to run the job, keeping the jobsite safe, planning construction operations, jobsite material

management, revenue and cash flow, and resource loading and leveling.

These courses are designed for 21 hours of instructional time. The three levels of EPS are progressive. Instructors are required to take the train-the-trainer course from NECA.

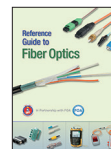
FIBER OPTICS

Fiber Optics Textbook

S480 \$ 71.84

The Fiber Optic Association (FOA) has partnered with the *electrical training ALLIANCE* to create a new textbook on fiber optics. Fiber optics are used throughout the electrical industries for communications systems, electrical controls, sensing devices, lighting and numerous other applications. Prior to working with fiber optics it is critical to understand its basic methods of operation and the terms associated with

fiber optic systems. This new NJATC/FOA textbook will not only provide an overview of fiber optics, but begin to familiarize the student with the standards and practices surrounding fiber optics systems. Besides understanding the manufactures specifications, fiber optic installers must be in compliance with the *National Electrical Code* requirements. The textbook is supported by the FOA's online resources and labs.



Fiber Optics, Level I

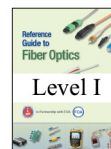
J277LM

Student: \$ 15.54

Prerequisite(s): Structured Cabling, Level I or Structured Cabling - CML

This course is to be used in concert with the FOA online resources which will help the student to attain their CFOT® certification. Based on the FOA Reference Guide to Fiber Optics, the new version of the Reference Guide to Fiber Optics has been enhanced to better reflect the

need for fiber optic training required by our JATCs and AJATCs. Completion of the course will give the student a comprehensive knowledge of optical fiber, connecting hardware, testing and fiber optic network design.



FIELD TESTING

Field Testing of High Performance Premises Cabling

S306 \$ 16.48

This handbook is intended for those who work with high speed cabling, both twisted pair and optical fiber. It provides an up-to-date review of cabling alternatives, physical layer measurements, cabling standards, troubleshooting practices, and certification techniques.



FIRE ALARM



Fire Alarm Textbook

S1046 \$ 70.44

S1046E \$ 70.44

This edition of Fire Alarm Systems incorporates changes to the 2022 edition of *NFPA 72*. It is an excellent text or reference for all students who want to better understand fire alarm and signaling systems.

In fact, it is written to help students attain certification in National Institute for Certification in Engineering Technologies (NICET) and International Municipal Signal Association (IMSA) programs.

NEW



Fire Alarm Systems, Based on the 2022 *NFPA 72* and the 2023 *NEC* - CML

J211LM.N

Student: \$ 37.36

Prerequisite(s): (DC Theory, Level IV or Electrical Theory 1: Direct Current - CML) and Electrical Job Information 1

The Fire Alarm Systems, Based on the 2022 *NFPA 72* and the 2023 *NEC* - CML course serves as an introduction to fire alarm systems and notification appliances, as well as a number of other alarm systems and advanced detection topics. You will become familiar with the fundamentals of these systems, their requirements, relevant devices, different interfaces and safety control functions, in addition to procedures

for inspection, testing and maintenance. The last two lessons include fire alarm certification sample exams based on the latest exams from NICET and IPSI, the two major certification programs in the United States. If you're contemplating getting certified after completing this curriculum, you can use these sample exams to gauge your preparedness.

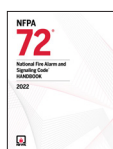


Fire Alarm Lab Manual

J211L.B \$ 64.56

The Fire Alarm Lab Manual contains specific information needed for the installation, troubleshooting, and maintenance of fire alarm systems. This manual provides

practical information throughout the material to prepare the Electrical Worker for real world fire alarm installations.



NFPA 72, 2022

Codebook S42022 \$ 137.35

Handbook S42022HB \$ 223.87



Firestopping Applications

J101LM

Student: \$ 7.08

When fires occur in buildings that are occupied, the occupants are without question in danger of losing their lives. History can certainly demonstrate the dangers that are involved when flames, smoke, and toxic fumes spread throughout the building. Lessons learned from tragic events of the past have improved the chances of survival for occupants of a building when a fire occurs.

Easy to recognize are the noticeable fire prevention and notification systems within a building, but there are also systems that aren't so noticeable, such as firestopping of penetrated walls and floors. Firestopping is intended to stop or limit the spread of flames, smoke, and toxic fumes during a fire, which in turn allows safe evacuation of occupants in the building.

Trainer - See Page 115 for more information

GROUNDING

Applied Grounding and Bonding Textbook

S36823 \$ 67.97

S36823E \$ 67.97

Few topics are more important to an electrical installation and to an Electrical Worker than grounding and bonding. Proper, code-compliant grounding and bonding is essential for a safe electrical installation and will serve principal functions such as facilitating the operation of

circuit overcurrent protective devices through a reliable, low-impedance and effective ground-fault current path as well as maintaining equipment at the same or close to the same potential as earth in addition to the surrounding conductive surfaces.



Applied Grounding and Bonding, Based on the 2023 NEC - CML

J210LM.N1

Student: \$ 37.24

Prerequisite(s): AC Theory, Level III or Electrical Theory 3: Alternating Current - CML

Grounding and Bonding - CML will introduce the student to the fundamental concepts of grounding and bonding. The course starts with lessons on circuit basics and overcurrent protection, grounding electrodes, requirements for services and grounded conductors, and grounding electrode conductors. Subsequent lessons will cover bonding requirements, equipment grounding conductors, grounding electrical equipment, and isolated grounding circuits and receptacles. The course

will then move on to exploring grounding at separate buildings and structures, the grounding of electrical systems, grounding for separately derived systems, special occupancies and equipment and a study of requirements and concepts related to grounding and bonding for communications systems, GFCI and GFPE, medium- and high-voltage systems, and grounding systems and earth ground test instruments.



NEW

Installer/Tech Grounding and Bonding, Based on the 2023 NEC

T210LM.M

Student: \$ 17.14

Prerequisite(s): None

The Installer/Tech Grounding and Bonding course introduces the student to the basic concepts of grounding, circuit basics, and overcurrent protection. The course then goes on to explain grounding electrodes, equipment grounding conductors,

and grounding electrical equipment. Finally, the course explains the requirements for grounding at separate buildings or structures and grounding and bonding communications systems and equipment. **PPTs included.**



HARASSMENT PREVENTION

NEW



Harassment Prevention: Awareness and Responsibilities 2024

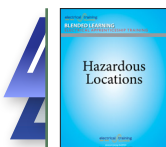
J158LM.E
Student: \$ 4.32

Prerequisite(s): None

Each Training Committee expects its employees, apprentices, and all those who work with its employees and apprentices to treat each other with respect and dignity and to make all efforts to prevent and address harassment. This course is designed to address the training required by the Department of Labor and the local Training Committee in making sure its employees, apprentices, and all those who work with its employees

and apprentices fully recognize what harassment looks like, how it is defined, when and how to report it, and what the steps and responsibilities are in the need to resolve it. This course is designed for all audiences: current and new apprentices, Journey-level workers, staff, committee members, contractors, supervisors, and anyone else who is involved in the apprenticeship program.

HAZARDOUS LOCATIONS



Hazardous Locations, Based on the 2023 NEC

J257LM.M
Student: \$ 18.82

Prerequisites: Code, Standards, and Practices 3 or Code, Standards, and Practices 3 - CML

This course covers the various areas, protection techniques, equipment used and wiring requirements of

hazardous locations. Students will learn the foundation to working in hazardous locations. **PPTs included.**

HEALTH CARE

Health Care Facility Electrical Systems Textbook

S998 \$ 48.45

S998E \$ 48.45

Health care facilities are some of the most critical buildings in any community. Electrical systems in health care facilities, from a design and installation aspect, are complex and unique. As these systems are installed in an extremely regulated environment, the complexity and chance of installation error exponentially increase. This text builds upon the strong foundation of the previous editions to bring the complexity of modern health care electrical systems into focus for installers. It examines an overall health care build environment including all relevant codes and standards. It covers both utility power and generated power configurations and the

engineering required to provide safe, reliable, redundant power. The electrical distribution requirements for both normal and essential power systems are discussed, exploring how safe power is ultimately delivered to patient care spaces. This edition continues with critical maintenance processes and procedures and the special consideration required when working in existing health care facilities. The text also looks at the future of health care and the changes that technology and shifting labor demographics will bring to the build environment. This text has everything designed to keep installers on the cutting edge of health care electrical systems.



Health Care Facility Electrical Systems, Level I, Based on the 2024 NFPA 99 and 2023 NEC J260LM.M1

Student: \$ 8.38

Prerequisite(s): Code, Standards, and Practices 3, Level I or Code, Standards, and Practices 3 - CML

Health care facilities are complex systems designed to keep patients and staff safe during normal and catastrophic conditions. This course of study focuses in depth on the unique electrical systems found in all types of health care facilities. Using a typical one-line diagram as a guide, this course follows the

flow of energy from the utility services and back-up generators, through the normal and essential electrical system distribution systems to the patient care spaces where the power is utilized. The requirements of several design and installation codes and standards are thoroughly discussed..



Health Care Facility Electrical Systems, Level II, Based on the 2024 NFPA 99 and 2023 NEC J260LM.M2

Student: \$ 8.38

Prerequisite(s): Health Care Systems, Level I

This course of study builds on the foundation of the Health Care Facility Electrical Systems Level I course. Maintaining electrical distribution systems and equipment is a critical element in any health care organization's approved maintenance plan. The role of an electrical contractor in these approved maintenance plans is discussed, as well as the checklists and protocols needed to maintain critical essential electrical system equipment successfully. New maintenance regulations found in 2024 NFPA 99: The Health Care

Facilities Code are discussed. Performing electrical work in existing operating facilities is also covered, including understanding and implementing Infection Risk Control Assessment/Mitigation (IRCA/M) plans designed to keep patients safe from infectious agents that may be distributed as part of the construction activities. A look at both the medical and construction technology that is revolutionizing health care construction and electrical systems and valuable information gleaned from the COVID-19 pandemic wraps up this course of study.



INSTRUMENTATION



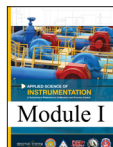
Applied Science of Instrumentation Textbook

S600 \$ 65.98

S600E \$ 65.98

This text emphasizes a solid foundation of classroom theory supported by on-the-job hands-on experience. Concepts are explained from their theoretical roots to

their application principles, with reminders about safety and technology.



Instrumentation Introduction - Module 1

J126LM

Student: \$ 34.26

Prerequisite(s): None

This course serves as an introduction to basic instrumentation topics such as math, science, electrical theory, meters and measurements, vocabulary, and process and instrumentation diagram interpretation.



Instrumentation Introduction - Module 2: Basics

J134LM

Student: \$ 34.26

Prerequisite(s): Instrumentation Introduction - Module 1

This Instrumentation Introduction - Module 2 course is the second step on the journey to become an Instrumentation Technician. This course is focused on the fundamentals of pressure, level, flow, and temperature measurements along with calibrations

unique to both conventional and smart instrument transmitters. Rounding out the course is an in-depth discussion on control valves. Successful completion of this course is required in order to move on to Module 3, the final instructional course. **PPTs included.**



Instrumentation Introduction - Module 3: Advanced

J135LM

Student: \$ 27.94

Prerequisite(s): Instrumentation Introduction - Module 2

This Instrumentation Introduction - Module 3 course is the third step on the journey to become an Instrumentation Technician. Building upon the knowledge foundation presented in Modules 1 and 2, advanced topics of analytical measurement, process

controllers, and control methods are presented. Rounding out the course is a discussion on common installation information. Successful completion of this module in addition to Modules 1 and 2 is required to sit for a theory-based qualification exam. **PPTs included.**



Instrumentation Introduction - Module 4: Further Study

J150LM

Student: \$ 23.29

Prerequisite(s): Instrumentation Introduction - Module 3

The Instrumentation Introduction - Module 4: Further Study lessons build on the knowledge gained from previous courses to assist instrument technicians in starting up and maintaining processes. The concepts of loop checking, start-up and tuning, troubleshooting,

as well as DCS and project management are introduced. A technician who develops a wider knowledge base in these topics will be capable of analyzing complex scenarios and developing solutions that are effective and accurate.



Instrumentation Introduction - I/C Certification Information and Practice Exam

J166LM

Student: \$ 13.27

Prerequisite(s): Instrumentation Introduction - Module 3

The IBEW Instrumentation Training Program includes a method of evaluation through which the student earns an Instrumentation Certification Card. The exams for these cards are part of the Electric Power Research

Institute (EPRI) Standardized Task Evaluation (STE) Program. This course offers a series of practice exams for those wishing to attempt the STE certification exam. Modules 1-3 must be completed prior to enrollment.

Instrumentation Lab Manual

J297LMIG \$ 73.76

J297LM \$ 52.44

*If your JATC has an Instrumentation trainer, this Lab Manual will supplement your training.

Trainer - See Page 116 for more information.

INTELLIGENT NETWORK VIDEO

Intelligent Network Video Textbook

S530 \$ 77.61

The *Intelligent Network Video: Understanding Modern Video Surveillance Systems, 2nd Edition* presents the rapidly changing technology landscape of the vastly improved image quality, better system performance,

and higher level of intelligence in the systems. This is an invaluable reference for industry professionals who want to understand the latest technology advancements in modern video surveillance systems.



Intelligent Network Video, Level I

J148LM.1

Student: \$ 10.41

Prerequisite(s): Structured Cabling, Level I or Structured Cabling- CML

The Intelligent Network Video, Level I course will introduce basic video technologies including analog video surveillance, lens characteristics, IP video, video and audio technologies, encoders, and camera types.

Though the course primarily focuses on network video, common components of both analog video and IP video are explored in detail.



Intelligent Network Video, Level II

J148LM.2

Student: \$ 4.17

Prerequisite(s): Intelligent Network Video, Level I

Intelligent camera systems in use today are typically installed on either a small network or possibly installed on a large network. Today's Electrical Worker, therefore, must understand the function of a network and how

networks are wired. The Intelligent Network Video, Level II course will introduce wired networks, wireless networks, and various network technologies that are used with video surveillance systems.



Intelligent Network Video, Level III

J148LM.3

Student: \$ 6.24

Prerequisite(s): **Installer/ -** Intelligent Network Video, Level I and
Technician Introduction to Network Technologies, Level I

Prerequisite(s): **Inside -** Intelligent Network Video, Level I and
Intelligent Network Video, Level II or Introduction to Network Technologies, Level I

Intelligent network video system installation and network connection are important concepts in surveillance systems. However, there is so much more that goes into a truly intelligent network video system. The Intelligent Network Video, Level III course includes lessons on

video management software, storage devices, hosted solutions, intelligent video, intelligent video solutions, and proper methods used to design an intelligent network video system.



JOB INFORMATION



Electrical Job Information 1 - CML

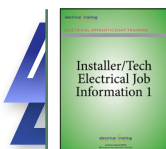
J221LM.P

Student:\$ 19.61

Prerequisite(s): None

In Electrical Job Information 1, you will learn about the typical workplace of an Electrical Worker and the importance of safety and awareness on the jobsite. You also will learn to identify some basic tools and common materials of the electrical trade. The course covers the basics of insulated conductors and teaches how to

choose and install anchors and fasteners. Lessons explain the types of building construction, conductor installation, and devices and switches. The course closes with an introduction to firestopping and sizing building wire.



Installer/Tech Electrical Job Information 1 - 2nd Ed.

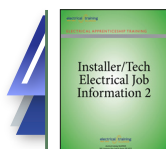
T251LM.N

Student:\$ 17.08

Prerequisite(s): Electrical Job Information 1 - CML

The Installer/Tech Electrical Job Information 1 course begins by introducing the basic telecom tools and voice-data-video test instruments. It goes into the hazards of overhead work being performed, and lessons then

introduce knot tying, hoisting loads, and performing hand signals. In addition, this course covers working with prefixes, the metric system, and structured cabling symbols.



Installer/Tech Electrical Job Information 2 - 2nd Ed.

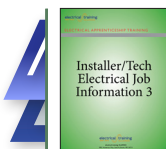
T252LM.N

Student:\$ 15.23

Prerequisite(s): Installer/Tech Electrical Job Information 1

The Installer/Tech Electrical Job Information 2 course starts with introducing the student to the theories of magnetism and electromagnetism. The course then familiarizes the student with use and occupancy

classifications based on the *International Building Code (IBC)*. The final lessons cover structured cabling management system, brackets and boxes, and flexible raceways.



Installer/Tech Electrical Job Information 3 - 2nd Ed.

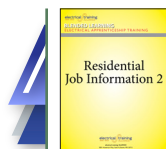
T253LM.N

Student:\$ 15.23

Prerequisite(s): Installer/Tech Electrical Job Information 2

The Installer/Tech Electrical Job Information 3 course focuses on common materials that the Installer/Technician uses on a daily basis. These materials include

steel boxes and covers, nonmetallic boxes, floor boxes, commercial fittings, and weatherproof boxes.



Residential Job Information 2, Based on the 2023 NEC

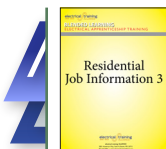
R255LM.M

Student:\$ 22.16

Prerequisite(s): Electrical Job Information 1 - CML

The Residential Wireman must have the ability to communicate effectively and understand the relation between labor and management. These topics are covered in depth. Other topics covered include testing

and verifying circuit performance, installing wire and cable in dwelling units, analyzing and laying out residential circuits, and understanding job costs and actual takeoffs for dwelling units.



Residential Job Information 3, Based on the 2023 NEC

R223LM.M

Student:\$ 11.05

Prerequisite(s): Residential Job Information 2

Most homes today include both heating and air conditioning systems. This requires a fundamental understanding of the systems by the residential wireman.

This course introduces concepts needed to understand remote control wiring, AC/R fundamentals, electronic controls for AC/R systems, and thermostat wiring.

LEADERSHIP

Effective Leadership Skills for Construction Field Leaders Textbook, 2nd Ed.

S197 \$ 70.57

S197E \$ 70.57

Effective Leadership Skills for Construction Field Leaders is packed with proven advice and case studies explaining how skilled tradesworkers transitioning into leadership roles can use new knowledge and strategies

to advance their careers. This textbook helps skilled workers develop the critical leadership skills that result in the efficient and productive completion of projects on time and within budget.



Preparing for Leadership: Personal Qualities, Level I - 2nd Ed.

J900LM.A

Student: \$ 9.66

This is the first in a series of courses which will lay the foundation for you to become a leader in the organized electrical industry. This course, Personal Qualities, explores the traits that each member of a team should

possess. These qualities will help to facilitate the harmonious coordination between the team's many parts.



Preparing for Leadership: Personal Qualities, Level I - 2nd Ed. (TTT Version)

J901LM.A

Student: \$ 0.00

The TTT version of the Preparing for Leadership: Personal Qualities course is an online course that **MUST** be completed before a Training Director is able to assign an Instructor to the "standard" version of this course. The instructor will be provided additional resources that will help to reinforce each of the topics as they

are presented. This online TTT will allow the instructor to become familiar with this very unique content as it cannot be assumed that all instructors will have been exposed to this type of training in their past experience in the same manner that it can be assumed that all Journeyman Wireman have expertise in bending conduit.



Practicing Leadership: Foreman's Development Series, Level I

J905LM.1

Student: \$ 14.05

The Foreman's Development Series consists of 17 three-hour modules where Foremen and Journeymen participate in an action-learning atmosphere of teaching and discussion focused on industry "best practices."

This Level I course contains the first four of these 17 modules including: The Role of the Foreman, The Foreman's Role in Job Safety, Project Start-Up, and Labor Relations.

Classrooms, along with on-the-job training, are ideal places for craftsmen and women to acquire knowledge by discussing real-life examples with the free exchange of ideas. The program provides an overview of the duties and responsibilities of the foreman on a typical job and how the implementation of industry "best practices" can improve competitiveness in the construction marketplace. The series does not present a particular or individual point of view; it was crafted with input from a variety of industry experts.



Practicing Leadership: Foreman's Development Series, Level II

J905LM.2

Student: \$ 14.05

The Foreman's Development Series consists of 17 three-hour modules where Foremen and Journeymen participate in an action-learning atmosphere of teaching and discussion focused on industry "best practices."

This Level II course contains the four of these 17 modules including: Material Management, Manloading and Scheduling, Managing Production, and Communications.

Classrooms, along with on-the-job training, are

ideal places for craftsmen and women to acquire knowledge by discussing real-life examples with the free exchange of ideas. The program provides an overview of the duties and responsibilities of the foreman on a typical job and how the implementation of industry "best practices" can improve competitiveness in the construction marketplace. The series does not present a particular or individual point of view; it was crafted with input from a variety of industry experts.



LEADERSHIP



Practicing Leadership: Foreman's Development Series, Level III

J905LM.3

Student: \$ 12.76

The Foreman's Development Series consists of 17 three-hour modules where Foremen and Journeymen participate in an action-learning atmosphere of teaching and discussion focused on industry "best practices."

This Level III course contains three of these 17 modules including: Estimating Principles, Documentation, and Specifications.

Classrooms, along with on-the-job training, are ideal

places for craftsmen and women to acquire knowledge by discussing real-life examples with the free exchange of ideas. The program provides an overview of the duties and responsibilities of the foreman on a typical job and how the implementation of industry "best practices" can improve competitiveness in the construction marketplace. The series does not present a particular or individual point of view; it was crafted with input from a variety of industry experts.



Practicing Leadership: Foreman's Development Series, Level IV

J905LM.4

Student: \$ 12.76

The Foreman's Development Series consists of 17 three-hour modules where Foremen and Journeymen participate in an action-learning atmosphere of teaching and discussion focused on industry "best practices."

This Level IV course contains three of these 17 modules including: The Role of the Estimate, Change Management, and Project Closeout.

Classrooms, along with on-the-job training, are ideal

places for craftsmen and women to acquire knowledge by discussing real-life examples with the free exchange of ideas. The program provides an overview of the duties and responsibilities of the foreman on a typical job and how the implementation of industry "best practices" can improve competitiveness in the construction marketplace. The series does not present a particular or individual point of view; it was crafted with input from a variety of industry experts.

LIGHTING ESSENTIALS

Lighting Design Basics

S699 \$ 64.53

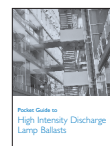
Lighting is an essential component of any designed space, yet it is one of the most difficult to get right. *Lighting Design Basics* provides a fundamental grounding in architectural lighting concepts, processes, and techniques that every student should master.

Concise, visual coverage of current lighting technology includes design scenarios for more than 25 spaces; each case includes an in-depth rationale, floor plans, diagrams, and construction details to illustrate the real-world application of lighting design.



Advance Ballast Pocket Guide

J258.H \$ 8.87



Lighting Essentials, Level I - 2nd Ed.

J259LM.K1 Student: \$ 6.38

Prerequisite(s): 4,000 Hours of OJT

The Lighting Essentials, Level I course gives a brief overview of the nature and science of light itself. Many electrical contractors “value engineer” a lighting architect’s or lighting designer’s lighting specifications. So to meet the needs of the owner/customer, the electrical contractors, or their employees, that are

making lighting equipment and placement decisions should understand the nature and science of light and luminaries. The lessons also give an overview of lamp types, the quantity and quality of light sources and some basics on lighting control.



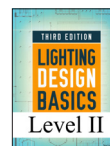
Lighting Essentials, Level II - 2nd Ed.

J259LM.K2 Student: \$ 6.38

Prerequisite(s): Lighting Essentials, Level I

As the move continues toward energy conservation, many existing lighting systems (even those installed less than 10 years ago) could be replaced with newer more energy efficient lamps, luminaires and controls. The Lighting Essentials, Level II course describes some

basic concepts to be aware of when approaching a lighting retrofit and also provides in-depth coverage of fluorescent lighting, High Intensity Discharge (HID) lighting, and LED lighting systems.



Lighting Essentials, Level III - 2nd Ed.

J259LM.K3 Student: \$ 12.77

Prerequisite(s): Lighting Essentials, Level II

Lighting Essentials, Level III delves deeper into the basic design element for the most common occupancies. This helps the electrical contractor and/or Electrical Worker understand how to fulfill the lighting requirement of the customer in a design/build situation. It also allows the

electrical contractor and Electrical Worker to carry on an intelligent conversation with the customer’s architect or lighting designer. The course also contains lessons on troubleshooting HID ballasts and makes an economic case for the use of LED lighting systems.



LIGHTNING PROTECTION



Lightning Protection, Level I

J276LM.J1

Student: \$ 16.07

Prerequisite(s): **Inside** - Grounding and Bonding, Level I or Grounding and Bonding - CML

Residential - Residential Wiring Practices, Level II

A lightning protection system is essential in order to provide complete protection for the structure and its contents. This course will provide two integral parts to the understanding of lightning protection systems. Part 1 will describe the basic terminology and components

of lightning protection systems. In Part 2, the student will study essential methods for the correct installation of such a system, including design and layout requirements. **PPTs included.**

MATH

Building a Foundation in Mathematics Textbook

\$665 \$ 77.93

This all encompassing textbook provides a review of necessary mathematical skills for persons working in various trades and is crucial to the electrical trade. Topics include operations with whole numbers, integers, fractions, decimals, and ratios, with step-by-step examples and exercises for each procedure. More advanced topics include exponents, logarithms, and

trigonometry. The essentials of algebra, including solving equations and inequalities are covered, along with vectors and the basics of geometry. Final chapters in the text deal with binary, octal, and hexadecimal numbers and their applications, along with an introduction to Boolean algebra.



Tech Math - CML

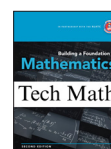
J201LM.J1

Student: \$ 31.97

Prerequisite(s): None

Many skills are required to successfully complete the electrical apprenticeship program and be able to function as a competent Journeyman. One such skill is the ability to apply standard mathematics in the classroom as well as on the job. The Tech Math course provides a review of

necessary mathematical skills which are crucial to anyone working in the electrical trade. Topics include operations with whole numbers, integers, fractions, decimals, ratios, exponents, and units and measurements.



Advanced Tech Math 1 - CML

J201LM.J2

Student: \$ 29.81

Prerequisite(s): Tech Math - CML

Many skills are required to successfully complete the electrical apprenticeship program and be able to function as a competent Journeyman. One such skill is the ability to apply advanced mathematics in the classroom as well as on the job. The Advanced Tech Math course

provides a review of higher-level mathematical skills that are crucial to anyone working in the electrical trade. Topics include operations with percentages, geometry, trigonometry, and vectors.



NEW

Building a Foundation in Mathematics, Level I

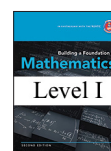
J201LM.I1

Student: \$ 24.47

Prerequisite(s): None

Many skills are required to successfully complete the electrical apprenticeship program and be able to function as a competent Journeyman. One such skill is the ability to apply standard mathematics in the classroom as well as on the job. The Building a Foundation in Mathematics,

Level I course provides a review of necessary mathematical skills which are crucial to anyone working in the electrical trade. Topics include operations with whole numbers, integers, fractions, decimals, ratios, exponents, and units and measurements.



Building a Foundation in Mathematics, Level II, w/ SW (w/o IG)

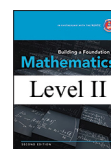
J201LM.I2

Student \$ 30.75

Prerequisite(s): Building a Foundation in Mathematics, Level I

The lessons throughout Building a Foundation in Mathematics, Level II will be much more demanding than the previous level and will require extensive use of the basic skills covered in the Level I course. A solid math foundation will create a base on which to build the understanding and knowledge necessary to be a confident Journeyman. This course offers more advanced

topics including logarithms, trigonometry, vectors, and the basics of geometry. Final lessons in the course deal with binary, octal, and hexadecimal numbers and their applications, along with an introduction to Boolean algebra. The Building a Foundation in Mathematics Workbook Level II is included with this course.



TI-30X IIS Solar Calculator

\$159 \$ 20.08

This scientific calculator is used for basic scientific, trigonometric functions, logarithms, reciprocals and

more. The calculator includes slide-on hard case and two-line display for easy reading



MOTOR CONTROL



Fundamentals of Motor Control Textbook

S547 \$ 75.48

Fundamentals of Motor Control Textbook has been developed to take the learner from the basics of motor control to advanced motor control topics through the use of three unique perspectives. This is accomplished with a book, which is divided into three sections. These sections progressively take the learner from basic concepts in “Section 1. Magnetic Motor Control”, through more advanced concepts in “Section

2. Electronic Motor Control”, and finally cumulates in “Section 3. Advanced Motor Control.” This reference provides a systematic pathway approach to the field of motor control, building on basic concepts, and moving through advanced concepts, to develop a clear and concise understanding of the equipment, the theory and the methods required to successfully perform motor control installation, maintenance, and troubleshooting.

NEW



Motor Control for Electricians - CML

J209LM.I1

Student:\$ 26.54

Prerequisite(s): Motors, Level II or Motors for Electricians - CML

Motor Control for Electricians is the course an electrician would want to take to gain the knowledge necessary to understanding major concepts in motor control. This course starts by introducing the standards that have formed the industry and continues with electrical safety with motor control. Subsequent lessons include symbols, diagrams, drawing, logic, as well as input and output devices. Relays, control transformers, motor

control centers, contactors, starters, timing devices, solid state devices, PLCs, drives, industrial networks, and system-wide troubleshooting are also discussed.

Each lesson has been developed to help the learner by introducing the topic and focusing on the understanding of the topic concepts.

Motor Control Simulator

J115LM

Student:\$ 26.54

The *electrical training ALLIANCE*, along with Square D and 3D Internet, have assembled a Motor Control Simulator (MCS) that mimics real-world classroom lab applications. An Instructor can assign Motor Control Projects to students that they can build online from anywhere there is internet access. They can test their projects, save them to their computer, and email a copy of the completed project file(s) to the instructor for evaluation. The Instructor Version of the MCS has 25 prebuilt labs and 10 variations of these labs

that make up a total of 35 different Ladder Logic Circuits. These labs can be used by the instructor as assignments or for demonstrations. This is a completely freeform tool to build projects around. The simulation will work (or not) just like projects built on your lab walls. The MCS can be used for more than just motor control simulation. It can be used for journeyman training, for example, to augment DC theory and Digital logic. Or, just for fun!



MOTORS & MOTOR DRIVES

Motors Textbook

S649 \$ 81.58

S649E \$ 81.58

The 2nd Edition *Motors* Text contains 19 chapters geared toward the theory, design, and installation of motors used in commercial and industrial locations. It covers DC, AC, single-phase, and 3-phase motors. It also includes topics such as bearings, braking, starting, motor alignments, adjustable speed drives, and drive systems. Special

consideration is given to the need for increasing the skills of Journeyman electricians and for the introduction of these topics into the apprentice training programs. The basic concepts, theories, and mathematical relationships are explained using many illustrations and examples.



Motors for Electricians - CML

J206LM.K1

Student: \$ 25.78

Prerequisite(s): **Inside** - (AC Theory, Level II or Electrical Theory 3: Alternating Current - CML) and Code, Standards and Practices 3

Residential - (AC Theory, Level II or Electrical Theory 3: Alternating Current - CML) and Residential Code 3

This course covers the major concepts of motor operation, maintenance, and installation. This course has been designed with the electrician working in the field in mind. It begins with a review of the components that make up a motor, such as magnets, magnetism, and electromagnetism. The following lessons cover the latest information on the operation of many types of motors, reading and understanding motor nameplates, starting

and stopping motors, alignment, and troubleshooting.

Each lesson is structured with an introduction to the topic that covers key words within the lesson, and a notes page to help the learner identify areas to take notes on the subject being learned while taking the course.



NEW

Motors, Level I - 3rd Ed.

J206LM.J1a

Student: \$ 4.08

Prerequisite(s): **Inside** - AC Theory, Level II and Code, Standards and Practices 3

Residential - AC Theory, Level II and Residential Code 3

The *Motors, Level I - 2nd Ed.* course introduces the learner to theory concepts such as magnetism and induction. After the theory concepts have been mastered, the student is introduced to motor

nameplates, AC alternators, three-phase motors, and squirrel-cage motors. **PPTs included.**



NEW

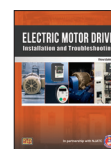
Electric Motor Drive Textbook

S475 \$ 84.46

S475E \$ 84.46

Electric Motor Drive Installation and Troubleshooting is designed for technicians in the field responsible for installing, programming, troubleshooting, and retrofitting electric motor drives. This industry-leading resource begins with electric motor principles, power requirements, and control methods and focuses on the safe operation,

installation, startup, and troubleshooting of electric motor drives. This new edition provides comprehensive coverage of electric motor drive retrofit procedures and includes proven, real-world application scenarios. Also included is the latest *NFPA 70E*® safety information.



Electric Motor Drive

CET475

Student: \$ 18.45

This course is designed to teach electric motor and electric motor drive operation, installation, and troubleshooting principles. The course begins with an introduction to electric motor drives, motor drive safety, and electric motor power requirements and control methods. After the introductory principles are covered, discussion moves to motor drive components, operation

fundamentals, installation procedures, and motor drive programming. The course concludes with an in-depth discussion on motor drive start-up procedures, troubleshooting (including required test tools), motor drive selection, and motor drive retrofit procedures. **PPTs included.**



NETWORK TECHNOLOGIES



Introduction to Network Technologies Textbook

S582 \$ 65.98

This rich resource is written for those looking to take the Network+ Exam, or those wanting to further their understanding of how network technologies work. This highly illustrated, user-friendly guide is packed with examples of how Internet Protocol (IP) networking is permeating all facets of electrical system control and monitoring. Start out with essential networking concepts

and components and then progress to protocols and devices with switches. Learn through expert instruction on how to identify security threats and protect systems from malware. Discover best troubleshooting practices and get the insider's view on connectivity methods used in homes and enterprises.



Introduction to Network Technologies, Level I

J145LM.1

Student: \$ 8.61

Prerequisite(s): **Installer/ - Technician**

Residential - Cabling, Networking, and Communication Technologies

This course is designed to give fundamental networking knowledge to the Electrical Worker by presenting topics including network topologies, the OSI model, network

protocols, wireless technologies, and basic wiring principles. **PPTs included.**



Introduction to Network Technologies, Level II

J145LM.2

Student: \$ 8.61

Prerequisite(s): Introduction to Network Technologies, Level I

The Introduction to Network Technologies, Level II course expands on content introduced in the Level I course. The course first starts by describing how switches are used in networks and then goes on to introduce how routing networks are created. The course

then describes how names can be resolved to IP addresses, the importance of network security, how wide area networks are connected, troubleshooting, network fault tolerance, and management and administration of networks. **PPTs included.**

OSHA

NJATC's OSHA Construction 10-Hour Book Vol. 1

J050.I \$ 49.40

The OSHA Outreach Training - Volume 1 utilizes over 270 images to illustrate covered topics and is well suited for incorporation into OSHA construction industry 10-hour classes to generate discussion and enhance learning by walking students through course material in the effort to have them identify, avoid, control and prevent hazards on a construction site. The course book was developed around OSHA's latest Construction Industry Outreach Training Program guidelines. These guidelines advise

that the 10-hour course is: (1) intended to provide entry level construction workers information about their rights, employer responsibilities, and how to file a complaint as well as how to identify, abate, avoid and prevent job related hazards on a construction site. (2) The training is to cover a variety of construction safety and health hazards which a worker may encounter at a construction site. (3) Training should emphasize hazard identification, avoidance, control and prevention, not OSHA standards.

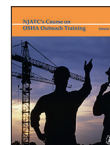


NJATC's OSHA Construction 20-Hour Book Vol. 2

J051 \$ 26.60

OSHA Outreach Training - Volume 2 is designed as a companion product to compliment NJATC's Construction Course Book - Volume 1. Volume 1 was primarily developed to support OSHA 10-hour courses for Construction. Volumes 1 and 2 together provide the content and flexibility required to round out and support

both OSHA 10- or 30-hour Construction courses. Like Volume 1, Volume 2 is an image rich publication designed to enhance learning by walking the learner through the content with excellent visual tie in to the subject matter.



OSHA 10/30 Kit

J052K \$ 76.00

J050.I OSHA Construction 10-Hour Book Vol. 1 | J051 OSHA Construction 20-Hour Book Vol. 2



OSHA 10/30 Kit with Standards

J052KC \$ 104.56

J050.I OSHA Construction 10-Hour Book Vol. 1 | J051 OSHA Construction 20-Hour Book Vol. 2

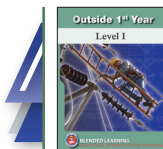
S125 29 CFR 1926 standards

OSHA Standards for the Construction Industry

S125 \$ 28.56



OUTSIDE



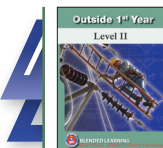
Outside 1st Year, Level I

OA1-1LM

Student:\$ 10.51

This course begins with a lesson that instructs the student on how to study the course and gives helpful pointers on negotiating the course materials. The next lessons present the responsibilities of the apprentice and the advantages of an IBEW/NECA apprenticeship.

Other lessons teach the student about safety and hazard awareness and how to identify and care for basic tools of the trade. An introduction to OSHA is given and then the last lessons cover topics such as fall protection, climber cutouts, climbing poles, and pole top and bucket rescues.



Outside 1st Year, Level II

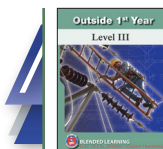
OA1-2LM

Student:\$ 10.51

Prerequisite(s): Outside 1st Year, Level I

This course covers a wide variety of topics. Students learn about how to avoid sexual harassment and the dangers of drug use. They also gain a thorough understanding of the history of the IBEW and NECA. Lessons cover the care and use of rubber gloves and

protective line devices. The apprentice will learn how to work in a confined space and how to work with powered equipment, wood poles, and energized circuits. Safety topics and hand signals will also be covered.



Outside 1st Year, Level III

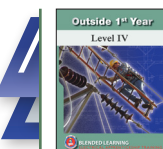
OA1-3LM

Student:\$ 10.51

Prerequisite(s): Outside 1st Year, Level II

The course opens with an introduction to whole numbers, fractions, decimals, and percentages. Lessons then transition to electron theory and electrical units. The apprentice also learns about ropes, knots,

hitches and splices, ladders, powered equipment safety pertaining to underground and digger derricks. The last lessons cover hazard communication and personal protective equipment.



Outside 1st Year, Level IV

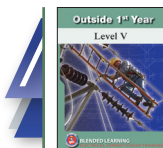
OA1-4LM

Student:\$ 10.51

Prerequisite(s): Outside 1st Year, Level III

To be successful in this industry, an Outside technician must be knowledgeable about mathematics and Ohm's Law. This course covers solving basic algebraic equations and solving power calculations. Students will learn about resistance, current, voltage and power in

series circuits. Lessons explore the use and operation of blocks, slings, and chockers as well as various rigging tools and equipment. Guy types, anchors, line conductors, crossarms, and insulators also are covered.



Outside 1st Year, Level V

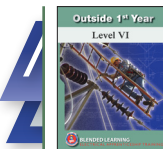
OA1-5LM

Student:\$ 10.51

Prerequisite(s): Outside 1st Year, Level IV

This course opens with lessons on voltage, resistance, current, and power in parallel circuits. The principles of magnetism and the electric system are then explored. Students then are taught about wire sizes and stringing.

They learn about sagging in conductors and connecting an overhead service. The course ends with lessons on insulated platforms and good housekeeping.



Outside 1st Year, Level VI

OA1-6LM

Student:\$ 10.51

Prerequisite(s): Outside 1st Year, Level V

This course begins with lessons on resistance, current, voltage, and power in combination circuits. The student will then learn about two-way radios, underground systems, and excavation and shoring. Laying conduit and pulling cable are covered. The next lessons touch

on manholes, underground systems, basket, aerial lifts, and platforms. The course closes with discussions on grounding and protective grounds, taking a line out of service, and lockout/tagout applications.

OUTSIDE

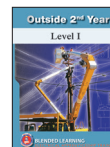
Outside 2nd Year, Level I

OA2-1LM **Student:\$ 17.71**

Prerequisite(s): Outside 1st Year, Level VI

The course opens with lessons that cover organizational topics such as the National Program, the IBEW Constitution, Parliamentary Procedure and How it Works, and Understanding Local Union Bylaws. It then covers Professional Personal Conduct, Absenteeism, Working

Outdoors, and Emergency Response. The course closes with lessons on Reviewing the Applications of DC Theory, Fundamentals of Alternating Current, Understanding How the DC Generator Works, and Understanding the Design and Function of AC Generators.



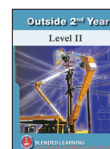
Outside 2nd Year, Level II

OA2-2LM **Student:\$ 17.71**

Prerequisite(s): Outside 2nd Year, Level I

Level II focuses primarily on transformers. It opens with lessons on test instruments, and then covers transformer construction, characteristics, operation,

polarity, tap changers, installation, load checks, and protection. The last lesson in the course will teach students about vectors.



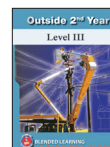
Outside 2nd Year, Level III

OA2-3LM **Student:\$ 17.71**

Prerequisite(s): Outside 2nd Year, Level II

Successful Qualified Electrical Workers must possess a strong knowledge of math. Level III opens with the student covering Working with Prefixes and Powers of 10, The Customary and Metric Systems of Measurements, The Circle, Area and Volume, and Measuring and Drawing

Angles. It then transitions to blueprint fundamentals, electrical drawings and diagrams, and civil drawings. It closes with lessons on staking sheets and stakes and measuring and leveling devices.



Outside 2nd Year, Level IV

OA2-4LM **Student:\$ 17.71**

Prerequisite(s): Outside 2nd Year, Level III

Level IV opens with Introduction to Inductance and continues with lessons on Voltage Drop, Metering, Overvoltage Protection, Fault Indicator, Tower Footings, Tower Erection, Joining High-Line Conductors, and Sagging Conductors. The course also covers Dampers,

Hold Down Weights, and Armor Rods, Phasing and Tying in Circuits, Overload Capabilities of Electrical Equipment, Phase Sequence, Back-feed, and Locating Faults and Restoring Service.



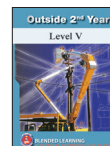
Outside 2nd Year, Level V

OA2-5LM **Student:\$ 17.71**

Prerequisite(s): Outside 2nd Year, Level IV

Cabling splicing is the main focus of Level V. Topics covered include safety, materials and tools, preparation, terminations, elbows, grounding cables, pulling, insulation testing, and manufacturers' kits. Students will

learn how to use a megohmmeter and gain experience in cable fault locating, underground troubleshooting, and confined spaces.



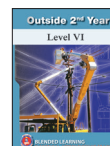
Outside 2nd Year, Level VI

OA2-6LM **Student:\$ 17.71**

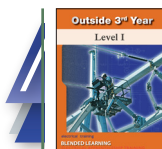
Prerequisite(s): Outside 2nd Year, Level V

Crane and traffic signal practices are covered in the course. Crane topics include mobile cranes, boom capacities and load charts, rigging vectors, and lifting and digging operations. After gaining an overview of the traffic signal industry, students will focus on flagging,

signs, and barricades, traffic control devices, hardware, and equipment. The course closes with lessons on caissons, basic signal blueprints, cabinets, and phasing and traffic flow.



OUTSIDE



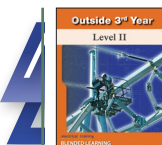
Outside 3rd Year, Level I

OA3-1LM **Student:** \$ 14.16

Prerequisite(s): Outside 2nd Year, Level VI

Level I opens with lessons on taking pride in the industry, an introduction to the COMET program, and productivity. Students will then learn about distribution circuits, alternating current, inductance, and capacitors.

The course closes with lessons on transformers -- 3-phase voltages and connections and single-phase connections. Students also will learn about troubleshooting 3-phase banks.



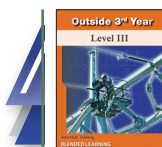
Outside 3rd Year, Level II

OA3-2LM **Student:** \$ 14.16

Prerequisite(s): Outside 3rd Year, Level I

Level II starts with a lesson on labor-management relations, but is primarily about personal protective grounding. Topics covered include body currents, basic electric circuits, grounding history, equipotential zone grounding, equipment selection, installation of grounds,

and step and touch potential. Including lessons on induced voltage and multiple grounds, truck grounding, underground distribution grounding, and grounding in substations. The last two lessons are on testing ground resistance and lightning protection.



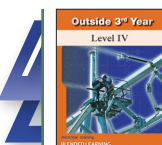
Outside 3rd Year, Level III

OA3-3LM **Student:** \$ 14.16

Prerequisite(s): Outside 3rd Year, Level II

Level III focuses on live-line tools and work practices. The beginning of the course covers applying rubber protective devices and the identification and care of tools. The next lessons are on maintenance with hot

sticks. The students then will learn about insulator and crossarm changes, helicopter timber changes, and special practices. The course closes with lessons on primary and single-phase revenue metering.



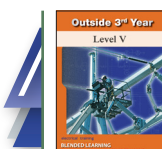
Outside 3rd Year, Level IV

OA3-4LM **Student:** \$ 14.16

Prerequisite(s): Outside 3rd Year, Level III

Level IV covers substation construction. Instruction includes safety procedures, federal regulations, print reading, making connections, and function and types of stations. The student will then move on to spill prevention, containment, and countermeasure plans.

The remaining lessons cover foundations, installing grout, underground power cables, grounding grids, steel superstructure assembly, and installing insulators, control cables, and devices.



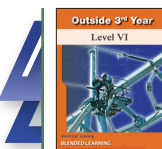
Outside 3rd Year, Level V

OA3-5LM **Student:** \$ 14.16

Prerequisite(s): Outside 3rd Year, Level IV

Level V continues the study of substations. Lessons cover equipment identification, oil circuit breakers, batteries, oils care and filtering, and air switches. Other topics included in this course are fuse principles, reclosers

and sectionalizers, fault current, voltage regulations, tap changing, and capacitors. The course closes with lessons on power factor and power harmonics.



Outside 3rd Year, Level VI

OA3-6LM **Student:** \$ 14.16

Prerequisite(s): Outside 3rd Year, Level V

Level VI prepares the student for life after class. Topics include the economics of unemployment, motivation, and the National Electrical Benefit Fund. Fiber optics,

alternative energy sources, and high voltage lines are also covered. The course ends with lessons on foremanship and Journeyman responsibilities.

OUTSIDE HYBRID

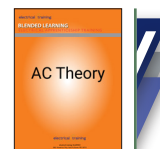
Outside Hybrid: AC Theory

O203LM **Student:\$ 12.61**

Prerequisite(s): DC Theory 1 and DC Theory 2

Magnetism is a major source of electrical energy. It is essential to understand the principles that are involved and to focus on the relationships of electron flow and magnetic flux. Most electrical power produced today for

the world economies is alternating current and most of this electricity is produced as 3-phase power. This course will take you through the principles and concepts of these theories and their on-the-job application.



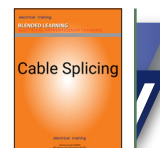
Outside Hybrid: Cable Splicing

O094M **Student:\$ 12.61**

Prerequisite(s): None

Being an Apprentice Line Worker means at some point you will likely have to be a cable splicer. As a cable splicer, you must understand the different steps involved in cable manufacturing, have an awareness of the different types of conductors and their uses, and understand how the environment affects installing or repairing cable. Having a keen safety awareness during cable splicing is essential. The splicer must be able to perform the proper testing procedures on the

cable and medium voltage equipment being used. It is beneficial to the worker to have knowledge of the types of cables used with medium voltage installations, the different insulations used on medium voltage cables, and some of the terminology used in cable splicing and medium voltage installations. Understanding the proper planning and equipment selection for cable pulling will be discussed in this course as well.



Outside Hybrid: Climbing

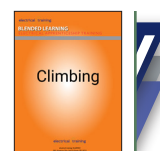
O102LM **Student:\$ 5.82**

Prerequisite(s): None

This course will focus on climbing, from ascending and descending ladders and towers to wood pole climbing, which is essential to the trade.

Besides the physical requirements needed for climbing involved in this industry, knowledge and training about the

use of ladders, step bolts, and pole-climbing equipment and safety are essential for every Qualified Electrical Worker to know. This course covers the necessary background about what you may have to climb, how to inspect and care for the equipment needed, and how to keep yourself protected and safe during the climb.



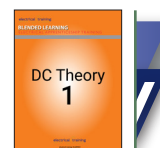
Outside Hybrid: DC Theory 1

O202LM.1 **Student:\$ 10.67**

Prerequisite(s): Distribution Basics 1

To be successful in this industry, an Outside Apprentice must be knowledgeable about general electricity components and theory, including calculating with

Ohm's Law. This course introduces DC theory; you will learn about resistance, current, voltage, and power in series circuits.



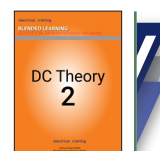
Outside Hybrid: DC Theory 2

O202LM.2 **Student:\$ 8.73**

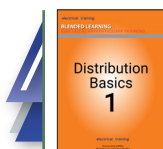
Prerequisite(s): Distribution Basics 1 and DC Theory 1

This course will continue to build off DC Theory 1, getting into more complex circuits. Lessons cover voltage function in both DC parallel and combination circuits, as well as how current reacts in these types

of circuits. You will learn how to calculate power in parallel and combination circuits, as well as develop an understanding of resistance in these circuits.



OUTSIDE HYBRID



Outside Hybrid: Distribution Basics 1

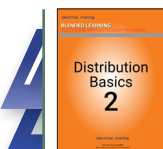
O566LM.1

Student:\$ 8.73

Prerequisite(s): None

Before we can provide electric services, structures must be installed to support the conductor. This course will start by covering the various electrical systems and then

review the distribution and transmission of electricity from digging holes, setting poles, and guy installations to working with energized and distribution circuits.



Outside Hybrid: Distribution Basics 2

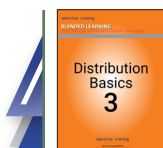
O566LM.2

Student:\$ 10.67

Prerequisite(s): Distribution Basics 1

Continuing the discussion about distribution systems, in this course students are taught about wire and conductor characteristics. You will learn about installing, sagging,

and tying in conductors and connecting an overhead service. Phase sequence, back-feed, fault current, and testing line faults are covered in this course as well.



Outside Hybrid: Distribution Basics 3

O566LM.3

Student:\$ 10.67

Prerequisite(s): Distribution Basics 1 and Distribution Basics 2

The discussion on distribution basics continues in this course, which covers the different equipment used on a power line system to help ensure proper voltages to the consumer, both residential and commercial. You will learn the correct procedures to install and remove this equipment safely. Lessons cover capacitors and their

important role in an electrical system. The course includes topics of reclosers and sectionalizers, the backbone of system coordination, and lessons on the concepts of power factor and power harmonics. Every part of a system is metered, and lessons introducing metering installation, measuring, and purpose are included.



Outside Hybrid: Equipment Operation

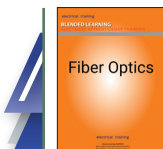
O105LM

Student:\$ 7.76

Prerequisite(s): None

Safe operation of powered equipment is key to preventing injury, as well as avoiding material or equipment damage. Qualified Electrical Workers have been injured or killed when they have failed to recognize hazards or follow safety rules and manufacturers'

guidelines. Safety knowledge includes appropriate operational training, and accessing and applying manufacturers' guidelines. This course covers crane topics, including mobile cranes, boom capacities and load charts, and lifting and digging operations.



Outside Hybrid: Fiber Optics

O480LM

Student:\$ 5.00

Prerequisite(s): None

Fiber optics have a variety of uses in several industries. An overview of installations, applications, and related safety are covered in this course. A focus of fiber-

optic network design is included and the preview of certification of this area are included as well.

OUTSIDE HYBRID

Outside Hybrid: Grounding

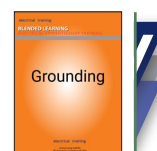
O210LM

Student:\$ 14.55

Prerequisite(s): None

The primary focus of this course is personal protective grounding (PPG). Lessons cover PPG topics ranging from history of grounding, basic electric circuits, and effects on the human body. Safety is the primary concern when working in the field. Knowledge of grounding and equipotential zone grounding, equipment selection, installation of grounds, and step and touch

potential are critical for maintaining a safe work environment. Lessons on induced voltage and multiple grounds, truck grounding, underground distribution grounding, and grounding in substations are included in this course as well. The course closes with discussions on grounding and protective grounds, taking a line out of service, and lockout/tagout applications.



Outside Hybrid: Job Information

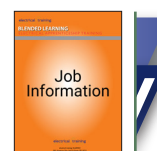
O221LM

Student:\$ 8.73

Prerequisite(s): None

This course focuses on the ability to read blueprints, maps, and plans and all factors involved, including special adoptions of symbols typically used in the electrical

industry. Surveying equipment, such as measuring and leveling devices, will be introduced as well.



Outside Hybrid: Live Line

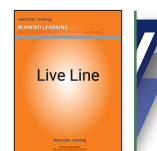
O459LM

Student:\$ 11.64

Prerequisite(s): None

Live-line work is a safe form of hot work when done properly. This course focuses on live-line tools and work practices that are most commonly found in the field. It is important to note that line workers need to adapt to the circumstances, tools, and work practices available and be aware of employer-developed techniques for safety

and effectiveness on the job. This course covers rubber protective device application, the identification and care of tools, and hot stick maintenance. Lessons also cover insulator and crossarm changes, helicopter timber changes, and special practices.



Outside Hybrid: Mathematics

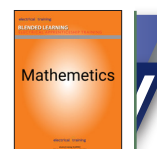
O201LM

Student:\$ 11.64

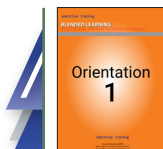
Prerequisite(s): None

Many skills are required to successfully complete this apprenticeship program and to be able to function as a competent Journeyman. One such skill is the ability to apply mathematics in the classroom as well as on the job. This course provides a review of mathematical skills that are crucial to anyone working in the electrical trade. Topics include the introductory information about whole numbers, decimals, percentages, and fractions.

Geometric concepts of the circle, area, and volume are covered, as well as basic algebraic equation solving. The course includes discussion of the customary versus metric system and how to work with the metric system. Mathematics plays a major role in the work of a Qualified Electrical Worker, from calculating voltages and circuits to rigging vectors and weight and forces.



OUTSIDE HYBRID



Outside Hybrid: Orientation 1

O200LM.1

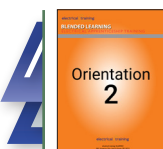
Student:\$ 11.64

Prerequisite(s): None

This course will define what apprenticeship is and your responsibilities as an indentured apprentice. Supporting lessons will cover "Code of Conduct" and what is expected of you as a Qualified Electrical Worker in the IBEW.

This course gives a thorough overview of the apprentice program and the goals and responsibilities of a Qualified

Electrical Worker. Apprenticeship is a special training and working cooperation that requires you to be a student and an employee at the same time. These lessons cover tips and techniques for good study habits, personal physical and mental care, navigating the work/no-work balance, and developing pride in yourself and this industry.



Outside Hybrid: Orientation 2

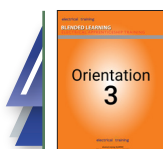
O200LM.2

Student:\$ 6.79

Prerequisite(s): Orientation 1

This course is designed to continue your orientation into the apprenticeship program by further exploring the IBEW and its history and giving you a better understanding of the organization, how it runs, how it supports you, and how you can be involved. An

introduction to the COMET program is included, hoping to inspire you to become an apprentice actively involved in your local area, helping bring necessary change and development to the program.



Outside Hybrid: Orientation 3

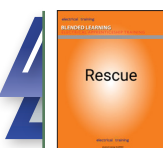
O200LM.3

Student:\$ 7.76

Prerequisite(s): Orientation 1 and Orientation 2

This orientation course focuses on the fact that you are nearing the end of your apprenticeship and what that means and navigating the questions that typically arise. What will change for you after completing the apprenticeship and becoming a Journeyman Line Worker? What will the rest of your career look like?

Would you like to be an instructor some day? What does that involve? Topics include the economics of unemployment and motivation, and the course ends with lessons on foremanship and Journeyman responsibilities.



Outside Hybrid: Rescue

O103LM

Student:\$ 5.00

Prerequisite(s): None

This course will teach you about rescue practices, the importance of keeping your skills up to date, and the importance of not becoming a victim while performing a rescue.

This industry involves risk. Other courses cover preparation and training for working in hazardous

climbing situations; this course covers the training needed to work in the rescue situation. It also covers how to safely work in confined spaces. Whether you are the one needing rescued, or you are the rescuer, training is needed to successfully handle the scene and save lives.



Outside Hybrid: Rigging

O489LM

Student:\$ 6.79

Prerequisite(s): None

Rigging may be a daily function for a successful Qualified Electrical Worker. It is important to know the safety factors involved with rigging because if done incorrectly you and/or the public could be seriously injured. This course is designed to teach the physical principles, safety considerations, and common

practices and equipment involved in rigging. The course begins with a discussion about ropes, knots, hitches, and splices. It continues with information about blocks and tackles, and slings and chockers. Hand signals are covered also as they are a necessary component of rigging work and safety.

OUTSIDE HYBRID

Outside Hybrid: Safety 1

O184LM.1

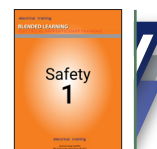
Student:\$ 8.73

Prerequisite(s): None

This course will cover safety topics that are crucial to new people coming into this trade.

This course is all about safety. Being a Qualified Electrical Worker can require work to be done in and with potentially dangerous situations and materials.

Knowledge and training are required to keep yourself and your team safe. Lessons will cover topics such as preventing, preparing for, and responding to safety situations. Laws for you to follow for protection and to know for your rights will be reviewed.



Outside Hybrid: Safety 2

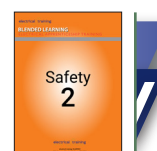
O184LM.2

Student:\$ 6.79

Prerequisite(s): Safety 1

Safety is not a one-and-done training in this industry. To keep yourself and others safe in the field, continual and updated safety training is essential. This course continues your safety training in the areas of energized and non-energized parts, insulate and isolate, and

insulating platforms and second point of contact. Shock, arc, and blast as well as coverage of rubber gloves and sleeves, including care and use, are included in this course as well.



Outside Hybrid: Substation 1

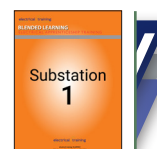
O496LM.1

Student:\$ 5.82

Prerequisite(s): None

Every Qualified Electrical Worker should have a solid comprehension of substations, their functions, equipment, and safety procedures involved. This

introductory course to substations should be carefully considered, as you will likely be working in a substation at some point in your career.



Outside Hybrid: Substation 2

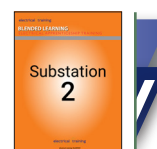
O496LM.2

Student:\$ 6.79

Prerequisite(s): Substation 1

This substation course focuses on the construction aspects of a substation, including functions and types of stations. It is important to know and understand the function of each component of a substation. This course

covers all those components from the foundations to the steel superstructure and all the insulation, installations, and connections in between.



Outside Hybrid: Substation 3

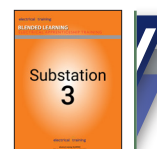
O496LM.3

Student:\$ 7.76

Prerequisite(s): Substation 1 and Substation 2

This third course on substations in your apprenticeship includes lessons that cover equipment identification, oil circuit breakers, and oil care and filtering. Spill prevention and containment measure methods and requirements are discussed as well. Substation batteries providing electrical backup will be studied, along with

their purpose, connection, safety procedures, and maintenance. Common misinterpretation about air switches will be discussed while exploring the types of switches, methods of opening, and safety factors involved.



OUTSIDE HYBRID



Outside Hybrid: Tools

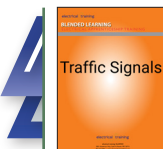
O101LM

Student:\$ 5.82

Prerequisite(s): None

This course will teach you how to identify basic tools and the proper care and use of tools of our trade. Supporting lessons will cover test instruments, from selection to application.

As an apprentice, you will be working with a variety of tools of the trade. This course reviews commonly used hand and power tools and discusses proper use and care of them. Test instruments will also be reviewed and you will be shown how to work with them in the field.



Outside Hybrid: Traffic Signals

O348LM

Student:\$ 10.67

Prerequisite(s): None

Working as a Qualified Electrical Worker requires an in-depth knowledge of traffic signal hardware and equipment as the electrical profession often expands beyond traffic signal construction and into other areas such as maintenance, sales, or management roles. Knowledge and training throughout the apprenticeship process could open doors of opportunity for your future. This course includes an introduction of the MUTCD publication and its purpose. Safety for the flagger,

workers, and motorists in and around the work zone is a critical concern. Flagging, signs, and barricade setup, rules, and procedures will be discussed in length. Caisson construction is one of the most vital aspects of building a traffic signal. The caisson must be built to an engineer's specifications; therefore, installation techniques, including blueprint introduction, are included in this course.



Outside Hybrid: Transformers 1

O458LM.1

Student:\$ 7.76

Prerequisite(s): Distribution Basics 1 and DC Theory 1

Transformers make it possible to make electricity accessible for regular usage, changing voltage, allowing it to be redistributed out for the consumer. That is why it is important that Qualified Electrical Workers have a thorough understanding of transformers, from

their function and operation to their construction and connections. Overvoltage protection and capabilities are explained in this course and information about specific hazards with working with transformers is included.



Outside Hybrid: Transformers 2

O458LM.2

Student:\$ 9.70

Prerequisite(s): Transformers 1

Extended knowledge of transformers is important to Qualified Electrical Workers as they are working with these on the job. It is crucial to not only know your role with the wires, but what is actually happening within the transformer so you are able to troubleshoot situations

that are not in proper working order. Lightning striking a transmission line can produce tremendous damage to a system, and line worker apprentices are likely to encounter the task of installing lightning protection.



Outside Hybrid: Transformers 3

O458LM.3

Student:\$ 5.00

Prerequisite(s): Transformers 1 and Transformers 2

Comprehensive knowledge of transformer voltage calculations, proper connection techniques, and being able to troubleshoot 3-phase banks are important in

creating an efficient system, reducing damage, and ultimately avoiding injury. This course provides you lessons to gain the knowledge in these areas.

OUTSIDE HYBRID

Outside Hybrid: Transmission

O104LM

Student:\$ 5.00

Prerequisite(s): None

This course starts with the fundamental knowledge of tower footings and construction. Lessons will cover joining or splicing high-line conductors, installation of

dampers, sagging conductors, and working with extra high voltage lines. Knowing this information creates a strong building block to start your on-the-job training.



Outside Hybrid: Underground Distribution

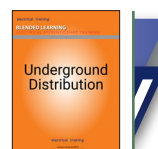
O468LM

Student:\$ 9.70

Prerequisite(s): None

More and more of our energy systems are moving underground. As an Apprentice Line Worker, it is important to understand why this shift is happening and how to work with the construction of developing these underground systems. Working with manholes and handholes is a given in this industry. The course covers

proper construction in building these as well as working in confined spaces. Knowing how to troubleshoot a system is essential; therefore, this course describes the operation and purpose of fault indicators and discusses service restoration.



Outside Hybrid: Wind and Solar

O299LM

Student:\$ 5.00

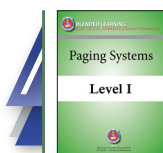
Prerequisite(s): None

The job of an Apprentice Line Worker is increasingly expanding into the areas of alternative energy sources: wind and solar (photovoltaics). This course covers the

concepts involved with these two alternative energy sources as well as general construction, maintenance, and operation of their systems.



PAGING SYSTEMS



Paging Systems, Level I

T263LM

Student: \$ 25.17

Prerequisite(s): None

Paging systems, background music, and PA systems are evident almost everywhere. This course is intended to provide a basic understanding of these systems, their fundamental components, and how these systems work, and then it explores some of the specific applications of the systems. It begins with lessons on understanding the components associated with distributed sound systems/paging systems and their functions. Next, it explains the differences between a constant voltage system and

a self-amplified system. Single-zone and multi-zone paging systems will also be examined. One of the prime considerations in any sound system design is an efficient power transfer between the amplifier and the associated speakers. There is a lesson designed to explain the two power transfer methods, their advantages and disadvantages. Other topics discussed in this course are designing and layouts, and sound masking systems.

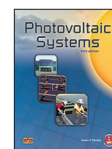
PHOTOVOLTAIC SYSTEMS

Photovoltaic Systems Textbook

S674 \$ 82.79 **S674E** \$ 82.79

This textbook covers the principles of photovoltaics and how to effectively incorporate PV systems into stand-alone or interconnected electrical systems. The student will learn system advantages and disadvantages, site

evaluation, component operation, system design and sizing, and installation requirements and recommended practices.

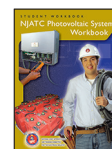


Photovoltaic Systems Workbook

J230IG.J \$ 43.07 **J230SW.J** \$ 30.40

The Photovoltaic Systems Workbook is a comprehensive resource and study guide associated with the Photovoltaic Systems textbook. This workbook contains 19 lessons, covering all aspects of PV system installations. Each lesson contains 24-30 questions on a

range of subjects, including principles of solar radiation, site surveys and planning, components and systems, electrical and mechanical integration, permitting and utility interconnection, and operations and maintenance.



Photovoltaics Kit Complete

J230IGKC.J \$ 126.27 **J230SWKC.J** \$ 113.79

Testing Supplement for Photovoltaics, Level I (From J230SW.J)

J230SWJLM.1 \$ 10.40

Access to a session of this supplemental resource is necessary for program instructors and students to gain ability to complete and utilize the test assessment feature of the LMS. Printed or online tests will only be

accessible for this course from the Assessment tool in the LMS. An enrollment in this course means a test may be produced, administered, or completed via the Assessment area of the LMS.

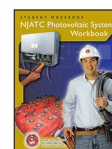


Testing Supplement for Photovoltaics, Level II (From J230SW.J)

J230SWJLM.2 \$ 10.40

Access to a session of this supplemental resource is necessary for program instructors and students to gain ability to complete and utilize the test assessment feature of the LMS. Printed or online tests will only be

accessible for this course from the Assessment tool in the LMS. An enrollment in this course means a test may be produced, administered, or completed via the Assessment area of the LMS.

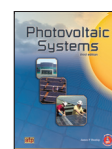


Photovoltaic Systems, 3rd Ed.

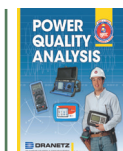
CET674 **Student:**\$ 14.20

Access to a session of this supplemental resource is necessary for program instructors and students to gain ability to complete and utilize the test assessment feature of the LMS. Printed or online tests will only be

accessible for this course from the Assessment tool in the LMS. An enrollment in this course means a test may be produced, administered, or completed via the Assessment area of the LMS.



POWER QUALITY

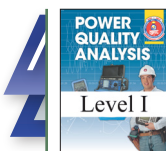


Power Quality Analysis

S569 \$ 50.92

This textbook will help a student grasp the intentions and applications of Power Quality Surveys and Monitoring systems. The text begins by introducing the affects through economic factors into the “why” behind a power quality survey and mitigation. Various methods are presented with measurement applications such that

a reader accurately grasps the art of performing a Power Quality Analysis upon a facility electrical distribution system. Mitigating techniques, test measurement connections, sine wave analysis and more are all covered thoroughly in this text.



Power Quality, Level I

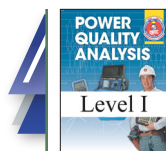
J228LM.I1

Student:\$ 16.77

Prerequisite(s): AC Theory, Level III or Electrical Theory 3: Alternating Current - CML;
DC Theory, Level V or Electrical Theory 1: Direct Current - CML

With more and more industries relying on technology for their operations, maintaining sufficient and appropriate power to support these machines and computers is critical. Understanding and being able to troubleshoot power quality issues including harmonics and other power quality issues is an invaluable asset the Electrical

Worker must possess. The lessons in this course are designed to instruct the learner on the financial concerns which drive a need for power quality, power distribution systems, and related measurement and monitoring techniques required for an accurate assessment of a facility's power quality needs.



Installer/Tech Power Quality, Level I

T228LM.I1

Student:\$ 14.57

Prerequisite(s): None

With more and more industries relying on technology for their operations, maintaining sufficient and appropriate power to support these machines and computers is critical. Understanding and being able to troubleshoot

power quality issues including harmonics and other power quality issues is an invaluable asset the Electrical Worker must possess.

PROGRAMMABLE LOGIC CONTROLLERS

PLC Principles and Applications Textbook, 3rd Ed.

S631 \$ 105.04

S631E \$ 105.04

Programmable Logic Controllers: Principles and Applications covers the fundamentals of installing, programming, and troubleshooting PLC-embedded systems used in industrial control applications. This text/workbook provides a foundation for PLC troubleshooting using software and test instruments while adhering to electrical safety. It also covers the use of discrete and analog input and output device installation, programming, and operation.

Large, detailed illustrations of nano-, micro-, and modular PLCs, ladder and programming diagrams, and industrial control cabinets are depicted to support the information presented. Real-world examples allow the learner to follow PLC circuit and system wiring easily and understand the information displayed on PLC screens during the programming process for TECO, Allen-Bradley, and Siemens products.



Introduction to Programmable Logic Controllers - 2nd Ed.

J162LM.A

Student:\$ 16.64

Prerequisite(s): Motor Control, Level I or Motor Control for Electricians - CML

This course is a beginning level course for the study of programmable controllers. This course covers the following topics: PLC and Electrical Safety, Electrical Principles and PLCs, Electrical Circuits and PLCs, PLC Hardware, PLC Programming Instructions, Programming PLC Timers and Counters, PLC and

System Interfacing, PLC Installations and Startup, PLC and System Maintenance, Troubleshooting Principles and Test Instruments, Troubleshooting PLC Hardware, Troubleshooting with PLC Software, Analog Principles, Analog Device Installation, and PLC Programming.



Programmable Logic Relay Trainer Kit - See Page 117 for more information.

RESIDENTIAL WIRING PRACTICES



Electrical Wiring Residential

S03923 \$ 146.52

The most comprehensive book of its kind on the market, *Electrical Wiring Residential* walks readers room by room through the proper wiring of a typical new residence and features a complete set of full size plans and specifications that shows how *Code* requirements

are applied throughout actual installations. This book explains and follows *NEC* requirements, using the metric system and it presents a number of the electrical formulas that electricians need to know to be successful and competent on-the-job.



Residential Wiring Practices, Level I, Based on the 2023 *NEC*

J292LM.M1

Student:\$ 8.56

Prerequisite(s): Applied Codeology - CML

An Electrical Worker is expected to perform tasks in a timely and efficient manner. In order to do so, one very important task is understanding basic skills in electrical safety, blueprints, and specifications. The first few lessons are geared toward introducing these topics, along with an introduction to lighting and small appliance circuits. The student will learn general and device wiring

methods and how to safely install and ground them. Safety is the first priority in an installation, the course will introduce specialty circuit interrupters, such as ground-fault circuit interrupters. Subsequent lessons will explore lighting branch circuits for bathrooms, hallways, garages, and workshop.



Residential Wiring Practices, Level II, Based on the 2023 *NEC*

J292LM.M2

Student:\$ 8.56

Prerequisite(s): Residential Wiring Practices, Level I

This course covers residential special purpose outlets for water pumps and water heaters, kitchens, bathrooms, and heating and air conditioning. In addition, the course will cover low-voltage signal systems, smoke, heat,

carbon monoxide alarms, security systems, service-entrance equipment, circuit breakers, pools, spas, hot tubs, and automation systems.

RIGGING

Rigging for the Electrical Industry Textbook

S761 \$ 59.61

S761E \$ 59.61

Rigging for the Electrical Industry is an introduction to the equipment, calculations, and procedures required for the safe handling and transportation of materials by hoists or cranes. This textbook is relevant for all personnel involved in lifting operations and can be used as part of a training program for certification preparation. Topics include industry standards and certifications, crane types and dynamics, signaling procedures, lift planning,

weight and balance, sling loads, rigging components, equipment handling, hoists, and lifting procedures. Readers learn how to calculate a load's weight and center of gravity (CG) and how these determine the sling loads on the rigging. Content also includes the effect of rigging arrangements and mechanical advantage on sling and line loads. Safety practices are discussed throughout.



Rigging for the Electrical Industry - CML

J241LM.K1

Student:\$ 19.72

Prerequisite(s): None

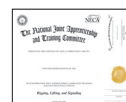
This course is designed to teach the physical principles, safety considerations, and common practices involved in rigging and hoisting loads. You will learn about different types and materials of slings, rigging hardware, and fiber

ropes and knots. In addition to the materials used for rigging a load, you will also learn the basics of hoisting safety, hand signals, how to calculate load weight and balance, and proper storage of rigging materials.



Rigging Course and Rigging and Lifting Principles Certificate

S560561C \$ 1.48



Lineworker Rigging Practices Textbook

S489 \$ 82.77

S489E \$ 82.77

Lineworker Rigging Practices is an introduction to the physical principles, safety considerations, and common practices involved in hoisting loads in the outside line industry. This textbook covers planning a lift, evaluating and preparing a load, choosing appropriate rigging equipment, rigging a load, communicating hoisting instructions, and performing a lift safely.



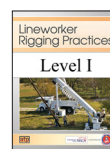
Lineworker Rigging Practices, Level I

J144LM

Student:\$ 17.13

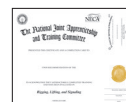
Prerequisite(s): None

This course is an introduction to the physical principles, safety considerations, and common practices involved in hoisting loads in the outside line industry. This involves planning a lift, evaluating and preparing a load, choosing appropriate rigging equipment, rigging a load, communicating hoisting instructions, and performing a lift safely.



Lineworker Rigging Practices Textbook plus Certificate

S489K \$ 84.27



SAFETY



Effective Cover-Up CET201

Student:\$ 18.93

The *electrical training ALLIANCE's* Effective Cover-Up video is an interactive program that introduces the student to the proper installation techniques of applying insulated protective equipment (IPG) to overhead lines. This course will walk the student through the different

types of cover-up materials being used today, along with the proper installation techniques. The student will have the opportunity to demonstrate the knowledge he or she has gained with several interactive exercises and a short quiz at the end of the program.



Flagger's Certification Handbook S348 \$ 19.56

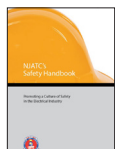
This handbook is used for training the flagger to work safely and protect the safety of others. The contents of this handbook combined with instructor training, will

provide the information and procedures necessary to enhance the safety of both workers and drivers while in typical street and highway construction repair projects.



Hot Sticks S035 \$ 36.65

This informational text will take readers through the history and development, manufacturing and care of hot line tools, training of hot stick crews, the working loads and hot line tools.



NJATC's Safety Handbook S184 \$ 26.08

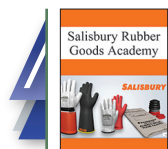
This is a reference text to be used during training sessions and as a field reference to look up answers to safety and health facts as questions arise.



Personal Protective Grounding for Worker Safety Textbook S562 \$ 52.96

Few other subjects provoke a stronger response from an experienced line worker than to inquire as to the preferred method of providing personal protective grounding. Grounding for safety is a key ingredient of keeping these workers safe during work on deenergized lines. Historically, there have been a number of attempts to establish a "best practice" for personal protective grounding. Workers need to understand what the

historical approaches have been and why many of these approaches are often inadequate. This course text is designed both as an introduction to new workers and as a refresher for experienced workers. It includes the basics to maintain a worksite in as safe a manner as possible and will help the understanding of grounding for safety, especially in those unusual situations where routine methods previously defined do not apply.



Salisbury Rubber Goods Academy J102LM

Student:\$ 19.32

The Rubber Goods Academy is a set of learning modules to instruct and emphasize the importance of properly handling PPE. The learner will gain a greater

understanding of the relationship between voltage ranges and rubber goods.

SECURITY

Electronic Access Control Textbook

S209 \$ 78.79

Electronic Access Control, Second Edition is an introduction to interfacing systems from various Electronic Access Control (EAC) manufacturers, video, intercom and related systems into one unified system. It describes how to provide integration while also allowing building security managers to protect, control, and manage their own users' card data. Readers will

be better able to manage their systems to protect the privacy of their cardholders' private information, simultaneously providing much improved control over the security of their buildings. This book details advanced card data management and advanced system access level management and offers the complete picture on EAC for readers at any level of expertise.



Electronic Access Control, Level I

J147LM.A1

Student: \$ 9.94

Prerequisite(s): None

This course introduces the fundamentals of access control. The course topics include an overview of access control, security and access concepts, how electronic

access control systems work, access control credentials and credential readers, types of access-controlled portals, electrified locks, and magnetic locks.



Electronic Access Control, Level II

J147LM.A2

Student: \$ 9.94

Prerequisite(s): Electronic Access Control, Level I

This course introduces how locking devices impact life safety and the Americans with Disabilities Act (ADA). Course topics include life safety and exit devices, door types and door frames, doors and fire ratings, free egress electrified locks, electrified deadbolt locks, and

portal control devices and applications. The course also covers access control panels and networks, cabling considerations, security system integration, and alarm system devices.



Intrusion Detection, Level I - 2nd Ed.

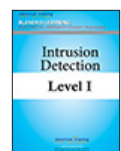
J146LM.A1

Student: \$ 37.91

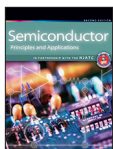
Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current

This course will introduce fundamental concepts for intrusion detection. Topics presented include terminology, magnetic contacts, motion sensors, glass

break detectors, codes and standards associated with intrusion detection, and basic design of the system.



SEMICONDUCTOR



Semiconductor Textbook

S542 \$ 71.84

This book serves as an introduction to the wide world of electronics for the electrical profession. It provides the necessary background required to understand the concepts and theory associated with semiconductors, an essential component in the proper installation and maintenance of electrical systems. Readers are

given the essential building blocks that will lead to a complete understanding of all aspects of semiconductor electronics, from the bipolar junction transistor and electronic amplifier to fiber optics and optical transfer data, to communication systems such as radio and television and more.



Semiconductors, Level I

J215LM.H1

Student:\$ 10.46

Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current

This course serves as an introduction to the wide world of electronics for the electrical profession. It provides the necessary background required to understand the concepts and theory associated with semiconductors, an essential component in the proper installation and maintenance of electrical systems. Learners are

given the essential building blocks that will lead to a complete understanding of all aspects of semiconductor electronics. Many of the lessons contained in this course are reinforced with hands-on lab assignments that complement the lesson material. **PPTs included.**



Semiconductors, Level II

J215LM.H2

Student:\$ 10.46

Prerequisite(s): Semiconductors, Level I

This course expands on the concepts learned in the Level I course. The student will be introduced to JFETs, MOSFETs, and other transistor types, fundamental concepts of amplifiers, differential amplifiers and operational amplifiers, oscillators, electronic control

devices and circuits, and finally integrated circuits. Many of the lessons contained in this course are reinforced with hands-on lab assignments that complement the lesson material. **PPTs included.**

SMART HOME TECHNOLOGIES

Your Smart Home Voyage Textbook

S188 \$ 24.68

S188E \$ 24.68

Your Smart Home Voyage presents the options, applications, and choices available to enhance various rooms of a home and covers how smart devices operate and how they can work to support individual lifestyles. Smart devices can make homes safer, more energy efficient, comfortable, and convenient. Choosing to include these devices should be based on what works best for individual home environments, personal needs, and lifestyles.

Your voyage is enhanced with colorful graphics,

animations, and videos that add excitement and more detailed information. A checklist at the end of each of the first nine chapters helps you plan the inclusion of smart home devices and track their use. The last chapter is a planning guide that helps you confidently determine features, costs, and installation options for a smart home lifestyle.

QR codes located throughout the book provide access to key information to make your smart home voyage fun and exciting!



Smart Home Technologies

J188LM

Student:\$ 15.20

Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current

There are many reasons to incorporate smart devices into a home. For this course, convenience, safety, and improved energy efficiency are just the beginning. The lessons will go over how to do a needs assessment and apply the information gained, describe the process of doing a home audit for energy losses, and explain what to do to reduce energy usage. The course covers the concepts and process of designing an infrastructure for a smart home and how to incorporate both fire and security systems to increase the safety of a residence.



Installer/Tech Smart Home Technologies

T188LM

Student:\$ 15.20

Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current

There are many reasons to incorporate smart devices into a home. For this course, convenience, safety, and improved energy efficiency are just the beginning. The lessons will go over how to do a needs assessment and apply the information gained, describe the process

of doing a home audit for energy losses, and explain what to do to reduce energy usage. The course covers the concepts and process of designing an infrastructure for a smart home and how to incorporate both fire and security systems to increase the safety of a residence.



SOUND REINFORCEMENT

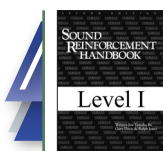


Sound Reinforcement Handbook

S479 \$ 48.44

In today's technologically sophisticated world, audio systems of various types are a part of almost everyone's daily life. Nearly every home has a stereo or a simple radio. Most businesses use some type of intercom/paging system. Some auto sound systems are more sophisticated than many home stereos. This handbook deals with a specific class of audio systems that is properly referred to as a reinforcement system. For the purposes of this handbook, the term sound system

is used exclusively to refer to reinforcement systems. Sound reinforcement systems are not generally as simple as home stereos. Although they operate on the same principles, they require a higher level of understanding from their users. This handbook is an introduction to those principles. Its purpose is to give the student the understanding necessary to design and operate moderate-scale reinforcement systems.



Sound Reinforcement Systems, Level I

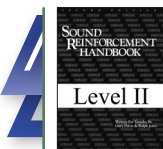
J269LM.1

Student: \$ 6.79

Prerequisite(s): DC Theory, Level IV or Electrical Theory 1: Direct Current

An audio signal is an electrical representation of a sound in the form of fluctuating voltage or current. To help better understand the concept, this course will look at the fundamental characteristics of this signal and show how it relates to frequency. The course begins by determining what a sound is and how sound is measured

using dynamic range. It also explores the impact that the environment has on sound systems, both indoors and outdoors. The student will learn how to understand and interpret specification, which provides insight into the quality of design and construction. The course also discusses microphones, loudspeakers, and mixers.



Sound Reinforcement Systems, Level II

J269LM.2

Student: \$ 6.79

Prerequisite(s): Sound Reinforcement Systems, Level I

This course expands on the material covered in Level I. Subsequent lessons will amplify the student's understanding of sound system interconnection, test

equipment, and electronics. The student will also explore the data structure of MIDI and sound synchronization.

STRUCTURED CABLING

Configuring and Installing Structured Cabling Systems Textbook

S681 \$ 60.51

S681E \$ 60.51

What is a structured cabling system? What is a structured cabling system used for? Why are they needed? A structured cabling system is a cohesive way of organizing a cabling system, and this textbook, *Configuring and Installing Structured Cabling Systems*, will explain everything about them. A brief history of telecommunications, along with descriptions of some legacy systems and the cabling and components that supported them, will be found here. Details of

the many spaces within a building used to house the structured cabling system elements and the parts of the telecommunications grounding and bonding system will be discussed. Pin-to-pair terminations, how and why they are tested, and the test parameters used for testing are also included. This text book also describes the administration of structured cabling systems and the Standards that govern all of the above items.



Structured Cabling Systems and Power-Limited Technologies - CML

J271LM.K

Student: \$ 19.23

Prerequisite(s): Installer/Technician - None

Inside - AC Theory, Level III or Electrical Theory 3: Alternating Current - CML

The Structured Cabling and Power-Limited Technologies - CML course begins by introducing the learner to the need for, and the installation of, structured cabling systems. After learning about pathways and spaces, cabling administration, and grounding and bonding, the student will learn about the performance requirements and testing of these systems. All related electrical codes and the ANSI/TIA standards are covered in detail.

This course also includes a healthy introduction to fiber optics including cable types, fiber and connector types, end face polishes, properties of light, and light sources. The two power-limited technologies defined and discussed are Power over Ethernet and Class 4, fault-managed power. The electrical codes for these technologies are discussed as well.



NEW

Voice-Data-Video Applications and Installations Textbook

S096 \$ 92.49

S096E \$ 92.49

Voice-Data-Video: Applications and Installation presents a comprehensive overview of low-voltage cabling, devices, and circuitry used in the installation and troubleshooting of systems used to transmit voice, data, and video. This text/workbook presumes a basic understanding of electricity and voice-data-video (VDV) applications. Component and circuit construction,

operation, installation, termination, and troubleshooting are emphasized and supported by detailed technical illustrations. Practical applications and procedures are presented as they relate to copper and fiber-optic VDV systems. Chapter review questions and an activity help reinforce learning of key concepts.



Voice-Data-Video: Applications and Installation, Level I

J096LM.1

Student: \$ 23.19

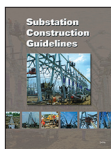
Prerequisite(s): AC Theory, Level III or Electrical Theory 3: Alternating Current - CML

This course offers an in-depth overview of copper and fiber optic cabling used for voice-data-video (VDV) applications in the electrical industry. The course introduces important concepts such as VDV safety as well as an overview of

the VDV industry. The course then introduces tools used in the VDV industry, copper and fiber cabling systems, VDV prints, cabling standards and NEC requirements, and copper and fiber optic installation and testing methods.



SUBSTATION

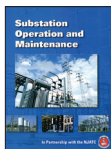


Substation Construction Guidelines

S496 \$ 62.10

The textbook delivers field-proven guidance on how to build a substation and how to expand an existing facility. This information is presented as a series of steps

involved in the construction process. This incremental approach makes it easy to thoroughly learn each step in the process before moving forward.



Substation Operation and Maintenance

S601 \$ 135.15

This is a comprehensive reference on how to operate and maintain all the essential components of substations: power transformers, circuit breakers, capacitors,

reactors, regulators, protective relays, control systems, and batteries.

SUBSTATION

Substation 1st Year, Level I

JSS1-1LM

Student:\$ 14.16

Prerequisite(s): None

This course begins with a lesson that instructs the student on how to study the course and gives helpful pointers on negotiating the course materials. The next three lessons present the advantages of an IBEW/NECA apprenticeship and the responsibilities of the apprentice. Other lessons give

the student a thorough understanding of the history of the IBEW and NECA. This course also covers subjects that every apprentice should be familiar with, such as avoiding the hazards of drug use, sexual harassment, absenteeism, and how to achieve a sense of professional personal conduct.



Substation 1st Year, Level II

JSS1-2LM

Student:\$ 14.16

Prerequisite(s): Substation 1st Year, Level I

The first lessons in this course expose the student to everyday mathematical equations, with each lesson building upon the last. The remaining lessons introduce basic electrical concepts every substation technician

must know. The lessons introduce current, voltage, and resistance in a circuit, and Ohm's Law. The course ends with a lesson that answers the question: What is electricity?



Substation 1st Year, Level III

JSS1-3LM

Student:\$ 14.16

Prerequisite(s): Substation 1st Year, Level II

The fundamentals of electricity and DC circuits are presented in this course and built upon with in-depth coverage of Ohm's Law and its relation to voltage,

current, resistance, and power. Lessons also introduce electrical devices and cover the principles of magnetism.



Substation 1st Year, Level IV

JSS1-4LM

Student:\$ 14.16

Prerequisite(s): Substation 1st Year, Level III

To be successful in this industry, a substation technician must be knowledgeable about the trade, highly skilled in the mechanics, and aware of the importance of safety on the job. This course introduces OSHA, the reasons for its formation and its regulations. Several lessons deal

specifically with situations substation technicians face, such as structure rescue and fall protection. The course also includes lessons on grounding in substations and how to establish a protective grounding scheme in a substation and concludes with a lesson on the hazards of working outdoors.



Substation 1st Year, Level V

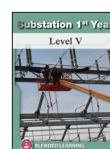
JSS1-5LM

Student:\$ 14.16

Prerequisite(s): Substation 1st Year, Level IV

This course explores the use and operation of blocks, slings, and chokers, as well as various rigging tools and equipment. It also explains the properties of ropes and how to use and care for them. This course discusses ladder safety topics including

proper use, selection, and care. Lesson also introduce rigging tools and hardware, digger derricks, and the use of load charts associated with digger derricks. It concludes with a lesson on hand signals that are common to the electrical industry.



Substation 1st Year, Level VI

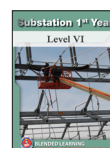
JSS1-6LM

Student:\$ 14.16

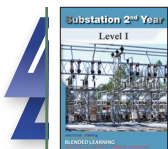
Prerequisite(s): Substation 1st Year, Level V

This course begins with an overview of the electric system in general then moves into the groundwork that goes into building a substation. Covering building substation foundations, excavating trenches, building duct banks, and proper methods of backfilling and compacting a trench. Three lessons discuss the various cable types used in

substations, how to safely pull cable, and how to install cable in vaults and manholes. Concluding with two lessons on the substation ground grid. One lesson deals with ground grid construction and the last deals with the exothermic welding process used to join ground grid conductors together.



SUBSTATION



Substation 2nd Year, Level I

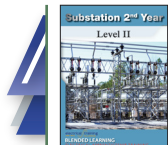
JSS2-1LM

Student:\$ 14.16

Prerequisite(s): Substation 1st Year, Level VI

Level I opens with lessons that introduce the student to blueprints and specifications. Electrical drawings and diagrams, along with civil drawings, also are reviewed. Other lessons discuss what blueprint symbols mean and how drawings are scaled and dimensioned. This course

also contains a lesson dealing with substation steel erection and a lesson that introduces measuring and leveling devices. The course concludes with a lesson on measuring and drawing angles and another on right triangles.



Substation 2nd Year, Level II

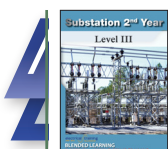
JSS2-2LM

Student:\$ 14.16

Prerequisite(s): Substation 2nd Year, Level I

Level II deals with the groundwork needed when constructing a substation, from site layout and preparation to building an oil spill prevention containment system as required by the EPA. Lessons expand on previous lessons dealing with ground grids, equipment grounding, and the

types of ground connectors available to the substation technician. The student will also learn about boom capacities, load charts, steel superstructure assembly, and erection. The last four lessons deal with installing insulators, bus/jumper types, and wire bus types.



Substation 2nd Year, Level III

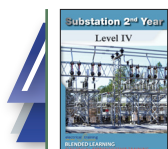
JSS2-3LM

Student:\$ 14.16

Prerequisite(s): Substation 2nd Year, Level II

Level III covers equipment specific to substations. The first two lessons are an overview of substation equipment and each of the remaining lessons concentrates on specific pieces of substation equipment beginning with the power transformer and ending with lightning arrestors. The

lessons explain the function of each piece of equipment and point out the hazards associated with them. Besides the equipment mentioned, this course covers capacitors, reactors, rectifiers, voltage regulators, and switches.



Substation 2nd Year, Level IV

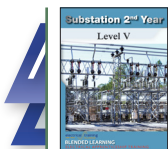
JSS2-4LM

Student:\$ 14.16

Prerequisite(s): Substation 2nd Year, Level III

Level IV starts with a review of the applications of DC theory and is followed by lessons dealing with resistance, current, voltage, and power in combination circuits. The student will then compare DC to AC and be

introduced to generators and the fundamentals of AC. The course concludes with a lesson on inductance and another on the causes and effects of voltage drop.



Substation 2nd Year, Level V

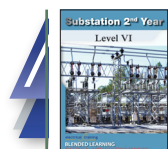
JSS2-5LM

Student:\$ 14.16

Prerequisite(s): Substation 2nd Year, Level IV

Level V begins with a general safety awareness lesson, which is followed by a lesson on substation applications of lock-out/tag-out. The next lessons are on single-phase transformers and cover an introduction to transformers, their construction and characteristics, and how they

operate. Single-phase connections are also reviewed. The lessons dealing with the installation of transformers help the students understand some of the pit-falls they may face when working with single-phase transformers. This course concludes with two lessons on the use of test instruments.



Substation 2nd Year, Level VI

JSS2-6LM

Student:\$ 14.16

Prerequisite(s): Substation 2nd Year, Level V

Level VI starts with a review on how to conduct transformer load checks. Three-phase connections and voltages are covered and the lessons on single-phase transformers wrap up with information on ferroresonance and the specific hazards a substation technician may encounter when working with transformers. The next lessons include

topics on step and touch potentials, equipotential zone grounding, and how to test ground (earth) resistance. This course concludes with two lessons that discuss subjects that substation technicians will be dealing with on a regular basis: power factor and power harmonics.

SUBSTATION

Substation 3rd Year, Level I

JSS3-1LM Student: \$ 14.16

Prerequisite(s): Substation 2nd Year, Level VI

Power transmission construction is one of the fastest growing electrical industries. Substations and switchyards are key components of power transmission. Level I opens with lessons on taking pride in the industry and understanding union by-laws and parliamentary procedures. Students then will have an introduction

to the COMET program and learn about the National Electrical Benefit Fund and labor management relations. They then will learn about the hazards of cell phone use in the workplace and the economics of unemployment. The remaining lessons cover motivation and leadership, foremanship, and Journeyman responsibilities.



Substation 3rd Year, Level II

JSS3-2LM Student: \$ 14.16

Prerequisite(s): Substation 3rd Year, Level I

There are many facets to substation construction that must be mastered. Safety is primary in both deenergized and energized situations. One of the significant dangers is arc flash. Level II discusses guidelines to prevent arc flashes,

utilization of rubber protective devices, and general safety in substations and switchyards. Grounding of all components, including vehicles, is also covered. In addition, power quality and distribution circuits are explained.



Substation 3rd Year, Level III

JSS3-3LM Student: \$ 14.16

Prerequisite(s): Substation 3rd Year, Level II

The lessons in Level III cover cable splicing and the components of safety, materials and tools, cable preparation, terminations, elbows, grounding, and all phases of testing. The final three lessons provide an

introduction to fiber optics, optical fiber, and connectors and splices. Fiber optic cables are quickly becoming the primary communication path of control and data throughout the entire transmission network.



Substation 3rd Year, Level IV

JSS3-4LM Student: \$ 14.16

Prerequisite(s): Substation 3rd Year, Level III

In these Level IV lessons, transformer principles, inspection and testing, tap changers, and oil quality are discussed in great detail. Along with these components, there are many tests to understand, such as insulation

power factor testing, resistance testing, temperature indicator testing, and pressure relay testing. Various methods of insulation, including SF6 gas and its proper handling, are also covered.



Substation 3rd Year, Level V

JSS3-5LM Student: \$ 14.16

Prerequisite(s): Substation 3rd Year, Level IV

Circuit breakers perform an important role by preventing the enormous available power from destroying equipment, along with protecting human life. In Level V, the various operational, maintenance, and inspection and testing requirements of circuit breakers are covered. Time-travel characteristics of circuit breakers are also

explored in respect to proper selective coordination. The lessons also discuss the roles of capacitors, reactors, voltage regulators, and simple components such as raptor protection and animal control. Bus configuration, connections, welding, and infrared thermography lessons are included.



Substation 3rd Year, Level VI

JSS3-6LM Student: \$ 14.16

Prerequisite(s): Substation 3rd Year, Level V

Level VI focuses on substation controls and the monitoring of all systems and components. Control devices include protective relays and transmission system controllers. These systems communicate through power line carriers utilizing system control and data acquisition (SCADA) equipment. These

systems must have constant power to operate at all times; therefore, lessons on substation batteries and uninterruptible power supplies – and their maintenance and testing requirements – are included. The final lessons discuss the procedures of commissioning and energizing a substation.



SUCCESS IN THE WORKPLACE

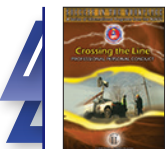


Something's Fishy: Absenteeism

DVD003LM

Student: \$ 17.38

The first in the series addresses the topic of absenteeism on the job how it jeopardizes our relationship with our customers, the on-time completion of the project, and future employment opportunities for all IBEW members.



Crossing the Line: Professional Personal Conduct

DVD004LM

Student: \$ 17.38

The second in the series combines two very important topics, professional personal behavior and safety, in a real-world workplace scenario. The goal of this program is to improve contractor and customer relations, be encouraging positive attitudes and professional work-

site behaviors. Participants completing this training program should be able to describe the connection between appropriate public job-site behavior and professionalism, as well as identify every worker's responsibility for safety and safe work practices.



Time is Money: Productivity

DVD005LM

Student: \$ 17.38

The third in the *Success in the Workplace* series addresses the critical issue of productivity. In today's highly competitive marketplace, there is no margin for mediocre performance or the old "make it last" attitude. Our mission is to meet the customer's needs by outperforming our competition with knowledge, skill, and ability. As highly skilled Electrical Workers, we are trained

to complete our installations in an efficient, workmanlike manner. We should take pride in bringing each and every job in on time and under budget. We need to send the message to our customers that, bottom line it truly does pay to hire the IBEW/NECA team for all electrical installation needs.



First Impressions: The Power of Personal Appearance

DVD006LM

Student: \$ 17.38

The fourth in the series takes a hard look at personal appearance on the job site. In today's marketplace, a customer's decision to employ or re-hire IBEW members can be driven by first impressions of an individual member's outward appearance. Unfortunately, books are judged by their covers in the real world. This program focuses on the importance of every member presenting a professional image, every day, on every job. On any given day, you never know who is observing you and how important your "impression" can be to the future employment of IBEW members and NECA contractors. The simple reality is this: at certain times we must set aside our personal desire to openly express our own

"individuality" for the greater good of all members of the IBEW and NECA. Without question, our skills and training are far superior to our non-union counterparts. But that is not enough in the eyes of the customer. We all must constantly strive to present a superior, professional image at all times. The customer needs to feel good about his or her decision to employ our members on a project. When he or she see Electrical Workers who act like professional, dress like professionals, and show real pride in their work as well as themselves, they know they made the right decision. First impressions are so important, and you never get second chance to make a good one!

SUCCESS IN THE WORKPLACE

Every Hour Counts: Productivity Increases Employment

DVD007LM

Student: \$ 17.38

The fifth in the *Success in the Workplace* series focuses on every worker's commitment on the job to make "Every Hour Count." By showing up on time and working to our full potential each day, we ensure that the work we perform is recognized as a "Value-add" over our non-union competition. Our efforts to restore our customer's faith in the organized electrical construction industry

are attributed in large part to a personal commitment to make Every Hour Count. The scenario in this program shows that had a small adjustment been made to labor costs during the bidding process, the contractor's bid could have gone in favor of the union and created employment for IBEW members.



Fiscally Fit?: The Challenges of the Marketplace

DVD008LM

Student: \$ 17.38

The sixth in the *Success in the Workplace* series addresses the misconception that if you go into the electrical contracting business you will automatically be successful, and that contractors are constantly reaping extravagant profits at the expense of the labor of IBEW members. This program features the story of a contractor who loses an important union bid which

adds to his growing cash flow problems. The contractor is a hard-working owner who faces all the pressures of running a business while supporting his family and his "extended family" of Electrical Workers. This program serves to illustrate all the time and effort required to submit a bid, the outcome of which is never certain, in competition with non-union contractors.



Glass Houses: Ethical Behavior

DVD009LM

Student: \$ 17.38

The seventh in the *Success in the Workplace* series focuses on "time theft" on the job site. The scenario in this program depicts an Electrical Worker asking one of his colleagues to cover for him while he leaves the job

site to take care of some personal business. Time theft is a serious abuse of our profession on many levels; it goes against our work ethic, our morals, and the trust our customers and our employers place in us.



Press One for Service: Meeting the Customer's Needs

DVD010LM

Student: \$ 17.38

The eighth and final program in the *Success in the Workplace* series focuses on the importance of delivering excellent customer service in order to gain new customers and retain customer loyalty. During the appraisal and bid process, price is not always the only determining factor in deciding whom the job is awarded. Customers often choose new contractors based on their overall impression of how qualified the company is

and how competent and professional their workers are. Were the customer's phone calls returned in a timely manner? Were contractor representatives punctual for appointments? Did the Electrical Workers dress and act professionally, leaving the customer with peace-of-mind and a confident impression that "These guys really know what they are doing!" Providing excellent customer service is a practice that can only pay positive dividends.



TELECOMMUNICATIONS ESSENTIALS



Communications Fundamentals

T170LM

Student: \$ 15.76

Prerequisite: Introduction to Network Technologies, Level I

The Telecommunications Essentials series contains four parts: Communications Fundamentals, Data Networking and the Internet, Next Generation Networks, and Wireless Communications. Communications Fundamentals introduces the technology that has been

traditionally used in the telecommunications industry. The course also introduces how traditional transmission media is used as well as how communications channels are established. Finally, the course will introduce the learner to the public switched telephone network (PSTN).



Next Generation Networks

T171LM

Student: \$ 15.76

Prerequisite: Communications Fundamentals

The Telecommunications Essentials series contains four parts: Communications Fundamentals, Data Networking and the Internet, Next Generation Networks, and Wireless Communications. The Next Generation Networks course starts by explaining what IP services are and how they are used in communications networks.

The course then explains how broadband evolution as well as how broadband communications will be used in the future. Finally, the course describes how optical networking and other technologies are used in communications networks.



Data, Networking, and the Internet

T172LM

Student: \$ 15.76

Prerequisite: Next Generation Networks

The Telecommunications Essentials series contains four parts: Communications Fundamentals; Data, Networking, and the Internet; Next Generation Networks; and Wireless Communications. Data, Networking, and the Internet starts by explaining how networking

architectures advanced from mainframes to hybrid clouds and how they changed from device to application driven. The course dives into local area networks (LANs) and wide area networks (WANs) and finishes up with internet protocols, addressing, and quality of service.



Wireless Communications

T173LM

Student: \$ 15.76

Prerequisite: Next Generation Networks

The Telecommunications Essentials series contains four parts: Communications Fundamentals; Data, Networking, and the Internet; Next Generation Networks; and Wireless Communications. The final course, Wireless Communications, begins with the basics of

radio transmission and antennas. It covers the cellular evolution, wireless standards, mesh networks, and radio frequency identification (RFID). It wraps up with a discussion on the handset revolution and emerging applications.

TEST INSTRUMENTS

Test Instruments and Applications Textbook

S571 \$ 81.14

S571E \$ 81.14

Test Instruments and Applications is a comprehensive instructional tool that provides an overview of the basic principles, procedures, and applications for the safe, efficient, and practical use of common electrical test instruments used for new electrical equipment

installation and for troubleshooting existing systems. Common electrical measurements are presented with an overview of measurement principles and procedures that feature over 80 common test instruments with various applications.



Test Instruments, Level I

J285LM.H1

Student:\$ 17.03

Prerequisite(s): AC Systems, Level I or Electrical Theory 2: AC Systems - CML

The course is designed to instruct why special test instruments are needed and how to select, understand, and safely operate them. Knowledge of Voice-Data-Video (VDV), power quality, high voltage and

insulation, instrumentation and process control, and special maintenance test instruments prepares the learner to work on all kinds of electrical installations. **PPTs included.**



Test Instruments Textbook

S471 \$ 64.53

Test Instruments begins with an introduction to safety and test instruments, and then focuses on test instruments used for specific applications found in the industry. Common electrical measurements are

introduced with an overview of the measurement principles and test instrument procedures required. Required safety practices and common industrial applications are emphasized throughout the book.



TORQUE

NEW



Torque for the Electrical Industry - CML

J242LM.A**Student:\$ 19.30**

Prerequisite(s): None

This course was made with all the classifications within the electrical industry in mind. The course introduces why torque is important in the electrical industry by explaining torque theory, specific definitions, torque conversion, friction, phases of fastening, and factors that affect torque. The Electrical Worker will be introduced to the basic principles of fasteners, which include markings, class/grade, bolt tension and strength, nut strength and compression, the use of washers, and thread identification and pitch. The course will also cover

types of torque wrenches, various attachments, and screwdrivers.

With all industry classifications in mind, this course has also taken into account various procedures for torque applications to electrical equipment and various apparatus. Want to know more about torque applications like tightening joints consisting of multiple bolts and connections to breakers, lugs, and receptacles? If your answer is yes, then this course is for you.

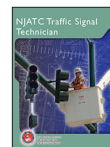
TRAFFIC SIGNAL

Traffic Signal Technician Workbook 1-1

TS1-1IG \$ 57.83 **TS1-1SW** \$ 42.87

The first workbook in the Traffic Signal Technician Apprenticeship curriculum contains twelve lessons designed to familiarize the apprentice with some basic yet essential knowledge of the electrical industry. Workbook 1-1 begins by explaining the responsibilities of an apprenticeship, along with the responsibilities and

role of the IBEW and *NECA*. The student must learn the importance of safety on the job and Workbook 1-1 begins with an introduction to OSHA and electrical safety awareness lessons. The book also explores the various tools of the trade, what they are used for, and how to use and take care of them.



Traffic Signal Technician Workbook 1-2

TS1-2IG \$ 54.47 **TS1-2SW** \$ 26.21

Workbook 1-2 is designed to introduce the student to general safety work practices and how to set up and work in a traffic work zone. The safety lesson topics in this workbook include working around powered equipment, the use of personal protective equipment, and working in and setting up a traffic work zone. There

are also two introductory lessons on conduit bending, explaining how to manufacture 90 degree bends, offsets, and kicks. The final four lessons of this workbook cover flagging, signs, and barricades, which when completed, prepares the student to take the IMSA Work Zone Safety certification examination.

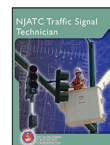


Traffic Signal Technician Workbook 1-3

TS1-3IG \$ 32.53 **TS1-3SW** \$ 20.64

Workbook 1-3 is a mixture of orientation, safety, *National Electrical Code*, and job information lessons. The twelve lessons of this workbook begin with several lessons reviewing the IBEW Constitution, and local union by-laws. Good housekeeping and the proper care and use of ladders comprise two of the informational lessons. The student is introduced to the *National Electrical Code*

with three lessons beginning, with an Introduction to the *NEC*, followed by a lesson on Article 110 and a lesson interpreting the language of the *NEC*- Article 100. The final lessons of this workbook focus on building wire construction and insulation properties, and how wire is sized.



Traffic Signal Technician Workbook 1-4

TS1-4IG \$ 37.95 **TS1-4SW** \$ 25.41

This workbook is comprised of twelve lessons of which are job information lessons. Hoisting loads properly and working in baskets, aerial lifts, and platforms are at the beginning of this “how to” series of lessons. The workbook also explores the use and operation of

blocks, slings, and chokers, as well as various rigging tools and rigging equipment. Identifying commonly used electrical products is reviewed along with two lessons on underground installations – conduit and trenching operations and the installation of caissons.

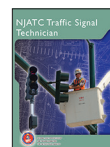


Traffic Signal Technician Workbook 1-5

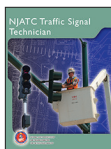
TS1-5IG \$ 61.99 **TS1-5SW** \$ 46.69

Workbook 1-5 is a mixture of job information and theory lessons. The job information lessons begin by introducing the student to traffic signal cabinets and equipment and phasing and traffic flow, along with an introductory basic signal blueprint reading lesson. Surveying, elevations, and grades with an introduction to measuring and leveling devices complete the “how

to” lessons. The next lessons, which are probably the most important in the study of electrical theory, will show how Ohm’s Law defines the relationship among the three basic electrical units. Building upon those fundamentals, the student will learn how to solve for power calculations.



TRAFFIC SIGNAL

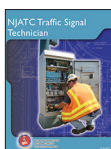


Traffic Signal Technician Workbook 1-6

TS1-6IG \$ 47.81 **TS1-6SW** \$ 34.14

As in the previous workbook, the twelve lessons in workbook 1-6 are comprised of a mixture of job information and theory lessons. The theory lessons deal specifically with series circuits and how resistance, current, voltage, and power react in a series circuit. The effect that resistance has on current and voltage in a series circuit is also studied. The final six lessons

have the student review the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD is recognized as the standard to build when local or state specifications are not available. At the completion of workbook 1-6, the student, with a short review, is ready to take the IMSA Traffic Signal Level I certification examination.



Traffic Signal Technician Workbook 2-1

TS2-1IG \$ 51.75 **TS2-1SW** \$ 38.81

The second year workbook 2-1 consists of eleven lessons, with the first three lessons covering in detail important orientation information: the benefits of a national program, American labor history, and the National Electrical Benefit Fund (NEBF). Workbook 2-1 continues where Workbook 1-6 left off by discussing

parallel circuits and the mathematics associated with them. This series of lessons begin an in-depth study of electrical theory by examining parallel circuits. The student will explore voltage functions in a DC parallel circuit, how current reacts in a DC parallel circuit, and how to calculate the power.



Traffic Signal Technician Workbook 2-2

J207IG.J \$ 42.22 **J207SW.J** \$ 31.65

Workbook 2-2 is the Codeology workbook.



Traffic Signal Technician Workbook 2-3

TS2-3IG \$ 52.96 **TS2-3SW** \$ 39.98

This workbook begins with four job information/safety lessons on underground construction: Excavation and Shoring, OSHA Standards for Excavation, Underground Conduit Installation, and Bending PVC Conduit. The next five lessons address an important topic for all Electrical

Workers – personal protective grounding. Lesson topics include Body Currents, Step and Touch Potential, and Induced Voltage and Multiple Grounds. Also in Workbook 2-3 are three lessons covering spans and mast arms, job layout, and intersection wiring.



Traffic Signal Prints

TS2-3P \$ 16.48

This print set is used with the Traffic Signal 2-3 workbook and is needed to complete the lessons.



Traffic Signal Technician Workbook 2-4

TS2-4IG \$ 54.47 **TS2-4SW** \$ 38.81

Workbook 2-4 consists of twelve lessons addressing basic volume and area calculations, DC combination circuits, and three introductory test instrument lessons. The first three lessons of the workbook teach the student how to calculate the area and volume of a circle along with basic information on concrete fundamentals. The next five lessons will provide the student with an

understanding of resistance in DC combination circuits, how current reacts in a DC combination circuit, how voltage functions, and how to calculate power in a DC combination circuit. Introduction to Test Instruments, General Use of Test Instruments, and Troubleshooting with test instruments completes the lessons studied in workbook 2-4

TRAFFIC SIGNAL

Traffic Signal Technician Workbook 2-5

TS2-5IG \$ 58.27 **TS2-5SW** \$ 42.35

Workbook 2-5 has twelve lessons with ten lessons focusing on DC and AC theory. This workbook begins with the review of DC Theory, which includes the study of magnetism principles. AC theory, more specifically the study of AC generators, resistive and reactance circuits along with learning to make basic circuit calculations

are introduced to the student. The students will learn about the components of an AC circuit and will see how inductance and capacitance affect how an AC circuit operates. The last two lessons are a study of transformer operation principles and transformer connections.



Traffic Signal Technician Workbook 2-6

TS2-6IG \$ 82.57 **TS2-6SW** \$ 69.17

The last workbook of the second year has eleven lessons which mainly concentrate on traffic signal cabinets and equipment. The first two lessons are an overview of basic electrical safety practices and “real world” transformer connections. The students are then introduced to a basic electronics lesson, which will help prepare them for the upcoming lessons on traffic signal cabinets. The next five lessons cover traffic

signal cabinets and equipment, vehicle detection – intrusive devices, and traffic signal preemption. Finally, the students are given information on traffic signal print reading for both NEMA TS-1 and TS-2, type 170 configurations. At the completion of the second year curriculum the students are ready, with a short review, to take the IMSA Traffic Signal Level II National Certification Examination.



Traffic Signal Technician Workbook 3-1

TS3-1IG \$ 69.40 **TS3-1SW** \$ 56.74

Workbook 3-1 focuses on AC Theory and the basic characteristics of AC circuits. Both series and parallel inductive and capacitive circuits are studied. Two lessons describe the effects of power factor on a circuit

and how to make corrections to the power factor of an AC circuit. There are also two safety lessons making the students aware of overhead hazards and some risks involved in working with electricity.



Traffic Signal Technician Workbook 3-2

TS3-2IG \$ 46.47 **TS3-2SW** \$ 34.31

This workbook has several orientation lessons dealing with the realities of working in the construction industry and also the economics of becoming unemployed. The importance of productivity on the job is also reviewed.

Seven of the eleven lessons are job orientation lessons focusing on traffic signal cabinet configurations, controller configurations, and detection and preemption menus. Vehicle detection devices are also discussed.



Traffic Signal Technician Workbook 3-3 / 3-4

TS3-3IG \$ 80.24 **TS3-3SW** \$ 79.46

This workbook combines eleven lessons for Workbook 3-3 and five lessons for Workbook 3-4. Workbook 3-3 lessons focus in two different areas: traffic signal time coordination and lighting. Lessons on time space diagrams and coordination menus are covered. Street lighting and the science of lighting, including the

“ABC’s” of high intensity discharge (HID) lighting, round out Workbook 3-3’s lessons. Workbook 3-4 introduces the student to alternative energy sources, uninterrupted power supply systems, and two different fiber optic systems.



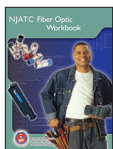
TS Bridge Plan Set

TS3-3P \$ 34.26

This print set is used with the Traffic Signal 3-3 workbook and is needed to complete the lessons.



TRAFFIC SIGNAL



Fiber Optic Workbook

J277IG \$ 40.54 **J277SW** \$ 27.87

The Fiber Optic workbook is a continuation of Workbook 3-4. This workbook identifies the requirements of the *NEC* and how they apply for fiber optic installations. These lessons build upon the fundamental skills that a technician needs for installing and servicing fiber optic

systems. These lessons will help develop “best practice” procedures for applying the safety rules when handling fiber optic materials, along with educating the student about proper installation practices.



Installer/Technician CCTV Workbook

J268IG \$ 43.07 **J268SW** \$ 30.40

The lessons in this workbook are designed to optimize understanding of all video technology aspects – from light sources to video monitors and recorders. The book

will introduce video security systems and technology and advance to remote monitoring and video communication control.



Traffic Signal Technician Workbook 3-6

TS3-6IG \$ 57.46 **TS3-6SW** \$ 53.20

This is the last workbook of the three-year traffic signal technician apprenticeship course. Workbook 3-6 draws upon the knowledge the student has gained in all the previous lessons to answer questions involving different troubleshooting scenarios. There are 22 lessons in this workbook. Nineteen lessons are devoted to troubleshooting traffic signal systems. Information sheets accompanying these lessons have flow charts to

help the student systematically evaluate and determine the proper procedure to fix a problem. Troubleshooting scenarios include dark intersections, multiple variations of flashing intersections, and improper cycling of intersections. Workbook 3-6 will help measure the knowledge the student has gained in this program, and will be a valuable reference the student can use for years to come.

TRANSFORMERS

Transformer Principles and Applications Textbook - 2nd Ed.

S576 \$ 73.05

S576E \$ 73.05

This newly revised *Transformer Principles and Applications* Textbook - 2nd Edition has been redesigned to equip students and professionals alike with the latest insights and techniques in the field. This updated edition boasts a reorganized structure for enhanced clarity and comprehension, featuring expanded content and updated information throughout. The textbook delves into fundamental principles in Chapters 1 through 5, including Magnetism & Electromagnetism, Transformer Operation, and various classifications and connections of transformers, both single-phase and three-phase. Chapters 6 to 11 delve into advanced topics including

Power Generation and Distribution, Harmonics, Autotransformers, Buck-Boost Transformers, Reactors, and Isolation Transformers. Special attention is given to Special Transformers, their configurations, and unique applications in Chapter 10, while Chapter 12 explores specialized connections for optimized performance. Moreover, Chapter 13 addresses Electrical Safety protocols, and Chapter 14 provides comprehensive guidance on Maintenance and Troubleshooting techniques. Notably, the textbook is enriched with much-improved diagrams, ensuring visual clarity and aiding in the understanding of complex concepts.



Transformer Code Calculations, Based on the 2023 NEC - CML

J227LM.N4

Student: \$ 10.41

Prerequisite(s): (Electrical Code Calculations I or Fundamental Code Calculations CML) and Transformer Principles and Applications 1 - CML

This course will provide a comprehensive look at *Code*® based calculations involving transformers. Both OCPD selection and conductor sizing will be covered in depth. This is a nuanced subject where details

are important. Transformers are applied throughout our power distribution installations, and knowing the proper application of requirements will be a useful skill throughout the career of Electrical Workers.



COMING
SOON



Transformer Principles and Applications 1 - CML

J205LM.J1

Student: \$ 65.43

Prerequisite(s): AC Theory, Level II or Electrical Theory 3: Alternating Current - CML

This newly formed CML course is centered around the *Transformer Principles and Applications* Textbook - 2nd Edition. This dynamic course delves into the intricacies of transformer operation, classifications, and various connections. Each lesson is meticulously crafted to cover essential topics, starting with Transformer Operation, delving into Transformer Classifications, and

progressing seamlessly to Single-Phase and Three-Phase Transformer Connections. Through interactive modules, and multimedia resources, participants will gain a deep understanding of these foundational concepts, empowering them to apply this knowledge confidently in real-world scenarios.



Transformer Principles and Applications 2 - CML

J205LM.J2

Student: \$ 37.47

Prerequisite(s): Transformer Principles and Applications 1 - CML

This newly formed CML course is centered around the *Transformer Principles and Applications* Textbook - 2nd Edition. This immersive learning experience offers a deep dive into crucial topics essential for understanding modern power systems. From the fundamentals of Power Generation and Distribution to the nuanced study of Harmonics, Autotransformers, Buck-Boost

Transformers, and Special Transformers, each lesson is meticulously curated to provide a holistic understanding of transformer applications in diverse contexts. Through interactive modules, and multimedia resources, participants will not only grasp theoretical concepts but also gain practical insights into the design, operation, and optimization of transformers.



TRANSFORMERS



Transformer Simulator

J112LM

Student: \$ 61.01

This simulator is a fully interactive training tool that simulates transformer connections in a lifelike setting which is safe for student and the equipment. The simulator is capable of simulating almost any

transformer connection imaginable. The simulator is capable of displaying both schematic and field views for each connection configuration.



Transformer Principles and Applications Textbook

S476 \$ 73.05

S476E \$ 73.05

This text provides a comprehensive overview of transformer operation, maintenance, installation, and troubleshooting, beginning with a thorough discussion of magnets, magnetism, electromagnetism, and how these apply to transformer operation. Subsequent chapters include the latest information on how transformers are

used to reduce harmful effects of harmonics, and how reactors and isolation transformers are used to improve the power quality available to electronic equipment. Installation, maintenance, and troubleshooting of transformers are discussed in detail.



Transformers, Level I - 3rd Ed.

J205LM.I1a

Student: \$ 61.31

Prerequisite(s): **Inside** - AC Theory, Level II or Electrical Theory 3: Alternating Current - CML

Residential - (AC Theory, Level II or Electrical Theory 3: Alternating Current - CML) and Residential Code 2

This course is designed to teach the fundamentals of transformers and the different type of transformer connections. The course covers important topics such as the Principles of Magnetism and Electromagnetism and Transformer Operating Principles. After the basics are covered, the students begin the study of Transformer Connections. Once this topic is covered in detail, the students can use the Transformer Simulator to practice making real transformer connections that were covered

in the lesson and associated labs. The transformer simulator provides a safe environment for the students to practice making the connections. Applying the knowledge of transformer connections, a lesson on Real World Transformer Connections comes before a study in transformer Harmonics and Power Generation and Distribution. PPTs included.

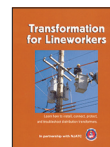
TRANSFORMERS

Transformation for Lineworkers

S458 \$ 63.31

This comprehensive training manual covers everything a lineman needs to know about transformers: basic AC circuit concepts, transformer connections, single- and 3-phase transformer installations, load checks, fusing, grounding, and troubleshooting. The material

is organized into 20 chapters. Each chapter covers one specific topic, with a self-test and answers. Any individual seeking to advance his/her understanding of transformers will find this book to be a valuable reference.



Transformer Lab Manual

S578LM \$ 34.26

This *Transformer Lab Manual* presents an overview of electrical theory, transformer principles, and transformer bank construction, installation, and testing as it applies to distributing single-phase and three-phase power. This book is designed for students performing hands-on training on the 3-phase Innovations transformer

trainer. Each module provides clear content supported with detailed illustrations, worksheets, and hands-on activities. Worksheets test student competency at the end of each module, and hands-on activities consist of installation and testing procedures for transformer bank connections.



Transformer Field Guide

S578 \$ 50.57

Transformer Field Guide contains procedures commonly practiced in industry and the trade. Variations taking into account specific circumstances may be appropriate. Specific procedures vary with each task and must be performed by a qualified person. For maximum safety, always refer to specific manufacturer recommendations,

insurance regulations, specific job site and plant procedures, applicable federal, state, and local regulations, and any authority having jurisdiction. The material contained is intended to be an educational resource for the user.



Transformer Pocket Guide

S578PG \$ 23.52

Transformer Pocket Guide contains procedures commonly practiced in industry and the trade. Variations taking into account specific circumstances may be appropriate. Specific procedures vary with each task and must be performed by a qualified person. For maximum safety, always refer to specific manufacturer

recommendations, insurance regulations, specific job site and plant procedures, applicable federal, state, and local regulations, and any authority having jurisdiction. The material contained is intended to be an educational resource for the user.



Outside Transformer Simulator

CET203

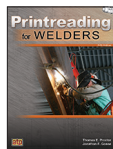
Student: \$ 46.85

Simulator training saves lives and equipment. The *electrical training ALLIANCES* has incorporated a transformer simulator into its Journeyman online course collection. This simulator is a fully interactive training tool that simulates transformer hookups as close to real life as possible, in a setting both safe to student and equipment. The simulator is capable of simulating various job duty scenarios and any transformer connection imaginable. The simulator is capable of displaying both schematic and field views for wiring connections.

Meters are included as part of the software to check voltages, both high and low, for every connection made. If correct procedures and protocols are not followed, or if the transformer is wired improperly, the system reacts as a regular transformer would and a simulated explosion and fire are shown. This is truly a state-of-the-art training tool that will help increase the student's retention of the material learned, reliability, comprehension, and on-the-job accuracy.



WELDING SKILLS



Printreading for Welders Textbook

S101 \$ 66.96

Printreading for Welders is an established text/workbook that presents printreading fundamentals, American Welding Society (AWS) welding symbols, and related printreading applications found in the welding and fabrication industry. This edition includes expanded

printreading activities and the latest symbols and nomenclature from AWS A2.4: 2012 *Standard Symbols for Welding, Brazing, and Nondestructive Examination*. Detailed prints, descriptive photos, illustrations, printreading, and math content are included.



Welding Skills Textbook

S102 \$ 108.36

Welding Skills is an industry-leading textbook that provides the essential welding knowledge and skills needed for successful employment. Practical skill-building exercises are given throughout, with step-

by-step instructions for completing welds. Hundreds of illustrations, photos, and charts present welding principles and practices and aid comprehension.



Welding Skills, Level I

J133LM.P1

Student: \$ 32.63

Prerequisite(s): None

Welding Skills, Level I presents an introduction to printreading fundamentals, American Welding Society welding symbols, and related printreading applications found in the welding and fabrication industry. Lessons

also cover oxyacetylene welding, shielded metal arc welding, gas tungsten arc welding, and gas metal arc welding. **PPTs included.**



Welding Skills, Level II

J133LM.P2

Student: \$ 30.51

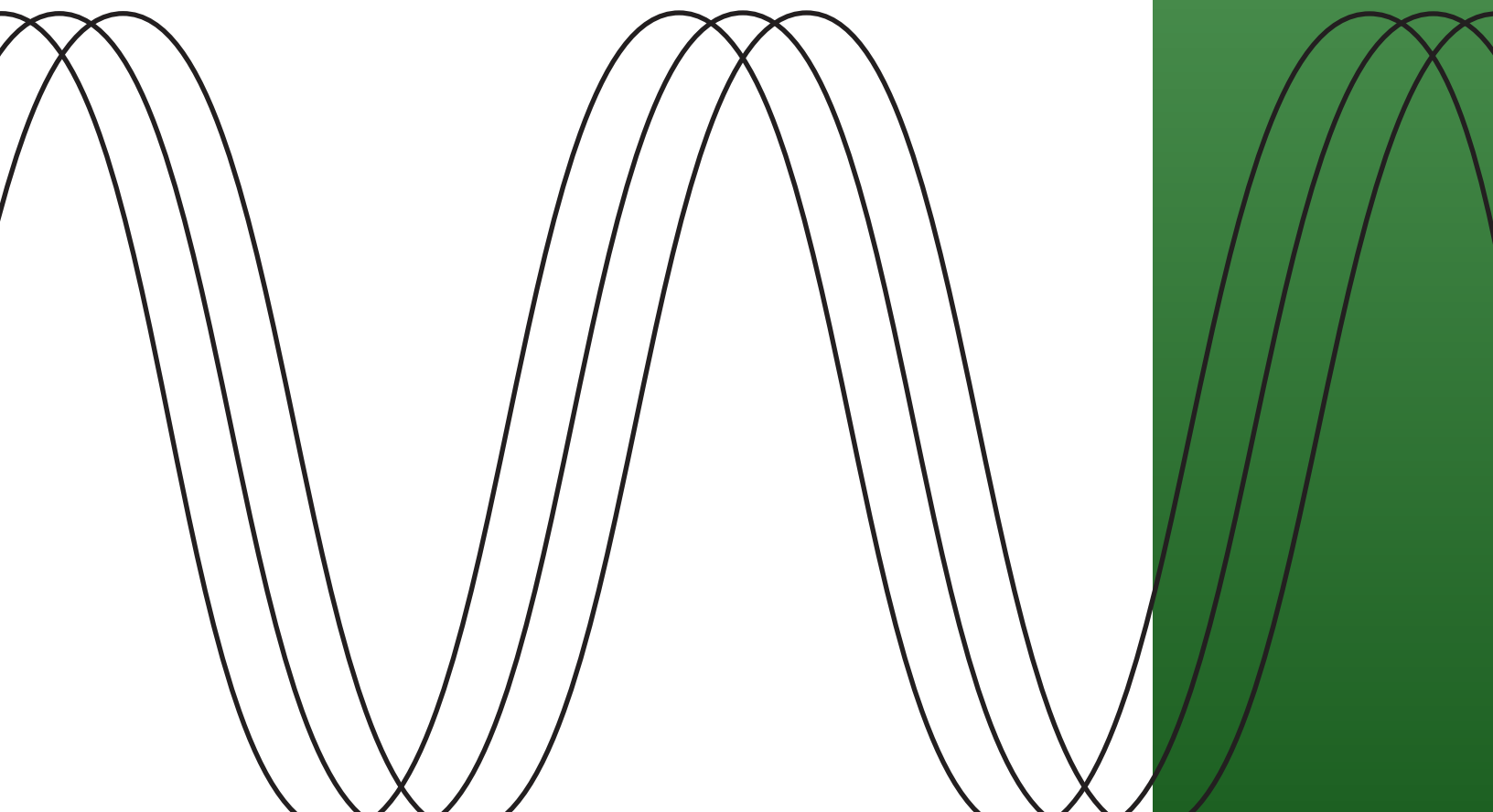
Prerequisite(s): Welding Skills, Level I

Welding Skills, Level II covers more advanced topics such as weld evaluation and testing and welding technology. Lessons range from destructive testing

to welding metallurgy to materials and fabrication standards and codes. **PPTs included.**



Resources



TESTING UPDATES

THE NEW TESTING PLATFORM/PROCESS

Redesigned from the ground up, the new Testing Administration Platform and Process provides the instructor with an assessment and reporting tool. Built on the LMS Quiz Engine, it will provide a more stable and robust foundation from which to administer exams.

For the Training Director or Administrator, enabling instructor access to the new Testing Platform is as simple as selecting the desired options checkboxes in the **EDIT INSTRUCTOR** dialog in the TMS.

Access Type:
☒ Yearly Subscription [View Access History](#)
Expires/Renews On: 02/01/2025

Exam Generator Permissions:
☒ Test Proctor Permissions ⓘ
☒ Can View Questions
☐ Can Swap Questions
☐ Can See Detail Report
☒ Can See Question Analysis Report
☐ Can See Answer Key
☒ Can See Skills Gap Report

Program Classification:
 Inside

The new Testing Platform is now accessed directly within the respective course.

Back Home > Outside 1st Year, LV I

Welcome to Outside 1st Year, Level I Online Materials

This course begins with a lesson that instructs the student on how to study the course and gives helpful pointers on negotiating the course materials. The next lessons present the responsibilities of the apprentice and the advantages of an IBEW/NECA apprenticeship. Other lessons teach the student about safety and hazard awareness and how to identify and care for basic tools of the trade. An introduction to OSHA is given and then the last lessons cover topics such as fall protection, climber cutouts, climbing poles, and pole top and bucket rescues.

Lesson 16: Bucket Rescue ***

EXAMS

Click the button on the right to prepare a new exam. The list below shows only your most recent exams, you may [view all](#) your exams on the exam management page.

Exam ID	Name	Session	Prepared By	Administered By	Date Created	Students	Attempts	Status
82243	2024-03-25_Errata	TS0008: Stover Test the Test	Training Director Assistant tda-ts0008		03/25/2024	0	0	Open

Prepare Exam

For more detailed information on the new Testing Platform or Process visit:

<https://lrm.electricaltrainingalliance.org/qr/10190>

Questions about the testing process can be sent to PTSITestingProcess@etalliance.org.



MORE TRAINING AVAILABLE

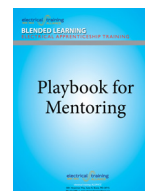
A Playbook for Mentoring in Your Program

J908LM

Student: \$ 0.00

Prerequisite(s): None

This Playbook is intended to assist you in creating and implementing a mentoring program in your JATC without the need to re-create the wheel. The assets in each lesson are intended to serve as a starting point for things such as a program announcement, mentor applications, and project timelines that you may work to modify to fit your local needs.



Coyne Basic Life Support

J192LM

Student: \$ 9.54

Prerequisite(s): None

The Coyne Basic Life Support Course will cover cardiopulmonary resuscitation, the use of an automated external defibrillator, when and how to place a patient in the recovery position, and how to care for someone with a foreign body airway obstruction. Upon successful completion of this online module, you will meet in-person with a Coyne Instructor and demonstrate your ability to perform the physical skills needed to provide life-saving care. For more information on the program please see the following [link](#).



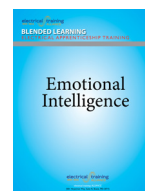
Emotional Intelligence

J161LM

Student: \$ 23.29

Prerequisite(s): None

This introductory course covers an emerging field known Emotional Intelligence. By learning and developing an individual's Emotional Intelligence, the individual learns to control the emotions that directly impact decision making to improve personal performance on and off the job. Benefits include the ability to effectively solve problems, rapidly adapt to change, and effectively resolve conflicts in effective manners whether during routine or complex tasks. Top performers learn how to effectively practice self-checking strategies as part of their own daily routines in personal and professional settings.



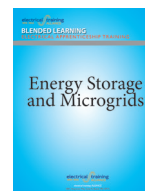
Energy Storage and Microgrids - 2nd Ed.

J305LM.A

Student: \$ 43.25

Prerequisite(s): None

The Energy Storage and Microgrids course is an introduction to safe work practices when installing battery storage systems using lead acid and lithium-ion chemistries. Hands on lab information and additional course resource materials are included.



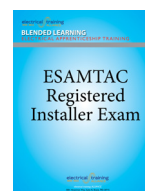
ESAMTAC Registered Installer Exam - 2nd Ed.

J306LM.A

Student: \$ 6.65

Prerequisite(s): None

The Energy Storage and Microgrid Training and Certification (ESAMTAC) Exam Site has two parts, the ESAMTAC Registered Installer Exam and the ESAMTAC Practice Exam.



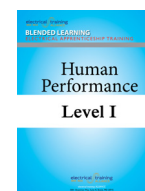
Human Performance, Level I

J154LM

Student: \$23.29

Prerequisite(s): None

This course is an introductory summary to human performance improvement approach as was initially introduced by the Department of Energy (DOE) over the last decade. The course is based on the DOE Standard Human Performance Improvement Handbook, Volume 1: Concepts and Principles. The lessons are based on the approach and practices that have had proven success in the nuclear power and utility construction industries. The course provides instruction on reducing errors and understanding how controls can assist to reduce errors. It also assists students in identifying the anatomy of an event and the theory as to why humans commit errors. It teaches students the effect that the organization has on its employees and their behaviors. The final lesson within the course provides ways to control or mitigate errors while also instructing on the effectiveness and reliability of controls.



MORE TRAINING AVAILABLE



Reading Comprehension

J199LM

Student: \$ 11.08

Prerequisite(s): None

Workplace reading skills are essential for success on the job. Reading to perform a task is required not just for job performance, but for worker safety. This course teaches you effective ways to capture the most important information within a text. You'll begin with an assessment that gauges your current ability to respond to questions about a technical passage. Then, you'll dive into best practices such as the SQ3R reading strategy, how to identify key components within a text, and how to effectively draw conclusions. You also will discover ways to connect to the text so as to establish deeper meaning, and eventually, how to apply the reading methods to working with math.



Virtual Reality, Branch Circuit Wiring

J920LM

Student: \$ 69.27

Prerequisite(s): None

The virtual reality experience will allow you to interact with some common jobsite tasks in a seemingly real or physical manner while remaining safe from any hazards or any concern about the repercussions of wiring a circuit incorrectly. This training will help you to feel more comfortable with these tasks before you attempt them in either a lab or "real-world" setting. For a limited time, when you sign up your students for the Virtual Reality training course Virtual Reality, Branch Circuit Wiring, you are eligible to receive free content for your classroom labs. This offer will both allow your students to come to the lab prepared for the hands-on experience as well as allow your training center to obtain the needed materials to have labs that reinforce the learning content in the virtual reality experience. The more students that you enroll in the virtual reality course the more money you will receive to equip your labs.

For additional information on the virtual reality training visit the Instructor Portal [blog](#) post about virtual reality.



For additional information, visit qr.njatcdb.org Item #8965

For more information on how to get started at your local training center, visit the Virtual Reality [Resources](#).



For additional information, visit qr.njatcdb.org Item #7937

To register to receive the free material click [here](#).



For additional information, visit qr.njatcdb.org Item #8966

DVDS



Recruitment DVD
S430 No Charge

Available While Supplies Last!



Interview Techniques
DVD002 \$ 230.50

Interview Techniques provides 90 minutes of easy-to-navigate, self-paced multi-media instruction using compelling video scenarios, self-evaluation questions, and tips from committee members. The program shows what to do – and what not to do – to select the best applicant and avoid common legal problems. Interview Techniques also addresses the many subtleties that help to get the best performance out of both the interview committee and the job applicant. The program is available in both DVD and CD-ROM format, and can be used individually or in a group discussion setting by interview committee members.

The applicant interview process – from either side of the table – can be filled with procedural pitfalls; from insufficient introductions to inappropriate follow-up questions, the potential for mistakes is high. The consequences of poor interview techniques, include the loss of qualified applicants and the legal challenges from rejected interviews can be an even greater hazard. To address this, NJATC, IBEW, and NECA have set out to establish a standardized applicant selection process to eliminate unfair, illegal, or inconsistent interviewing methods. Geared toward JATC members involved in the apprenticeship selection process, Interview Techniques teaches the finer point of interview preparation, structure, and questioning.

DOCUMENTS

	Item Number	Price
Applications (100) & EEOC Forms (100) – Scannable	S258K	\$ 24.07
Record Book	S071	\$ 24.07
OJT Assignment Forms (100)	S225K	\$ 24.07
Applying and Qualifying for Apprenticeship	S155	\$ 0.69
Training Director Job Analysis	S219	\$ 49.19

INSIDE DOCUMENTS

	Item Number	Price
Job Descriptions and Knowledge, Skills, and Abilities	S171	\$ 16.48
Inside Work Report Evaluation Form (100) – Scannable	S256K	\$ 31.67
Interview Pamphlet (Pack of 100)	S319K	\$ 39.74

INSTALLER/TECHNICIAN DOCUMENTS

	Item Number	Price
Telecommunication Work Report Evaluation Form (100) (Scannable)	S259K	\$ 31.67

RESIDENTIAL DOCUMENTS

	Item Number	Price
Residential Work Report Evaluation Form (100) (Scannable)	S260K	\$ 51.38

PROMOTIONAL/RECRUITMENT

	Item Number	Price
Brochures		
Brochure – Inside Apprenticeship	P500	\$ 0.75
Brochure – Inside Apprenticeship (pack of 100)	P500K	\$43.07
Brochure – Outside Lineman Apprenticeship	P501	\$ 0.75
Brochure – Outside Lineman Apprenticeship (pack of 100)	P501K	\$43.07
Brochure – Residential Apprenticeship	P502	\$ 0.75
Brochure – Residential Apprenticeship (pack of 100)	P502K	\$43.07
Brochure – Telecommunications (Installer/Tech) Apprenticeship	P503	\$ 0.75
Brochure – Telecommunications (Installer/Tech) Apprenticeship (pack of 100)	P503K	\$43.07
Craft Certification Performance Evaluations (CCPE)		
CCPE: Thinwall Conduit Fabrication and Conductor Installation	CCPE.TCFCI	\$ 6.17
CCPE: Thinwall Conduit Fabrication and Conductor Installation Setup Guide	PEVALI-CCPE.TCFCI	\$ 5.60
CCPE: Branch Circuit and Device Installation	CCPE.BCDI	\$ 6.12
CCPE: Branch Circuit and Device Installation Setup Guide	PEVALI-CCPE.BCDI	\$ 5.60
CCPE: Transformer Installation	CCPE.TI	\$ 6.12
CCPE: Transformer Installation Setup Guide	PEVALI-CCPE.TI	\$ 5.60
CCPE: Motor and Motor Control Installation	CCPE.MMCI	\$ 6.12
CCPE: Motor and Motor Control Installation Setup Guide	PEVALI-CCPE.MMCI	\$ 5.60
CCPE: Fire Alarm System Installation	CCPE.FASI	\$ 6.12
CCPE: Fire Alarm System Installation Setup Guide	PEVALI-CCPE.FASI	\$ 5.55
CCPE: Transformer Installation	CCPE.TI	\$ 6.12
CCPE: Transformer Installation Setup Guide	PEVALI-CCPE.TI	\$ 5.60
CCPE: Journey-Level Performance Evaluation	CCPE.JL	\$16.63
CCPE: Journey-Level Evaluation Setup Guide	PEVAL-GUIDE	\$ 5.55
Electrical Trades Proficiency Exams		
Electrical Trades Proficiency Evaluation Assessment Exam	P156-23	\$ 4.20
Electrical Trades Prof. Eval. Assessment Exam Answer Key/Score Analysis	P156AMK-23	\$15.29
Logos / Decals / Signs		
electrical training ALLIANCE 1" Logo Decal	P300-1	\$ 0.12
electrical training ALLIANCE 6" Logo Decal	P300-6	\$ 0.72
electrical training ALLIANCE 8" Logo Decal	P300-8	\$ 0.85
electrical training ALLIANCE 10" Logo Decal	P300-10	\$ 1.22
electrical training ALLIANCE 30" x 11" Sign	P300-18	\$47.98
Recruitment		
Recruitment Card (Pack of 100)	S401K	\$20.27
Recruitment Card Holder	S401H	\$ 5.39
Recruitment CD-ROM	S341	No Charge
Recruitment DVD	S430	No Charge



PROMOTIONAL/RECRUITMENT

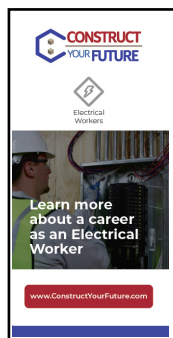
	Item Number	Price
Other		
Job Teaching Skills Card (Pack of 100)	S013K	\$ 17.74
Klein Tool Kit	KLE39076	\$ 315.32
Ohm's Law Medallions	S052	\$ 8.23



Veteran's Electrical Entry Program (VEEP)

The Veteran's Electrical Entry Program (VEEP) is designed to fill two needs facing the United States currently. The first is providing transitioning service members and recently separated veterans the ability to reenter the civilian workforce in a high demand field that offers excellent earning potential. In accomplishing that, VEEP also provides high quality electricians to an industry facing a major shortage of skilled labor. In doing so, the IBEW-NECA-electrical training ALLIANCE team supports our veterans and builds stronger relationships with military bases.

How can you get involved? JATCs can fill two roles, one is accepting graduates of the program and the other is training participants. In order to fill either role or for more information: see www.in2veep.com or email: gmc-murphy@electricaltrainingalliance.org.



Construct Your Future (CYF) Electrical Brochure

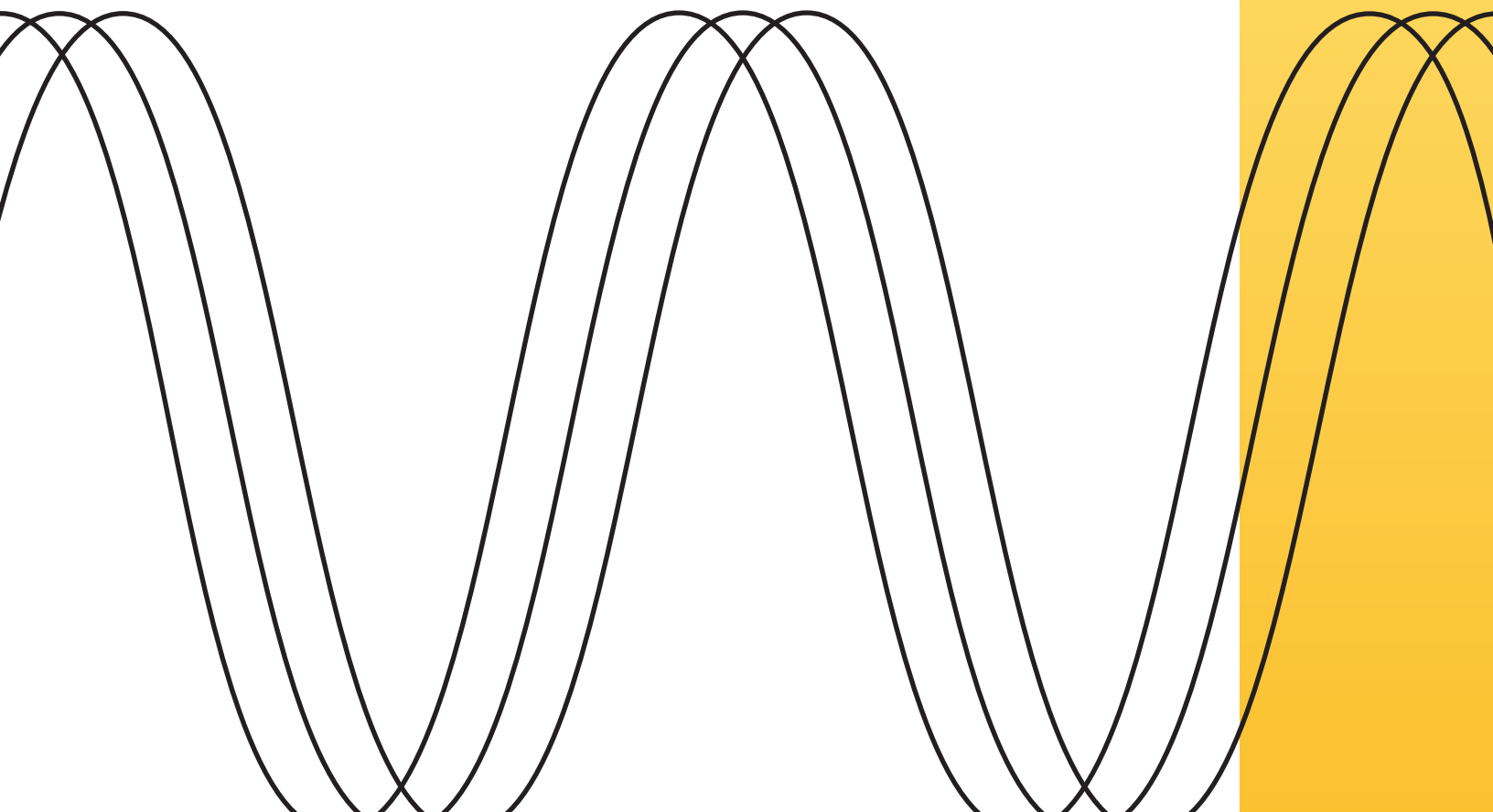
Construct Your Future is a digital recruitment tool that includes all construction trades with a spotlight on apprenticeship programs. Through the website and social media, we can connect with, educate, and engage quality apprenticeship leads from all over the United States and get them in touch with the local JATC in their area.

To order your customized Construct Your Future Electrical Brochure, great for outreach events such as career fairs, contact Cindy Sanderfur at csanderfur@electricaltrainingalliance.org.

Qty 100 - \$ 59.52 plus shipping
Qty 500 - \$156.91 plus shipping



Trainers



CABLE SPLICING TOOL KIT



Cable Splicing Tool Kit (Module 1)

S235 \$ 156.71

The Cable Splicing Module I Tool Kit includes the following tools: Cable splicers kit (knife, snips, & leather pouch), Long-nose duck bill pliers, Pocket size knife sharpener, 6' wood folding ruler, Protective eyewear, Canvas zipper bag, Dexter knife, 6" square leg outside measuring caliper, and 8" 4-way rasp file.

CONDUIT



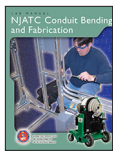
Conduit Fabrication Mobile Workstation

The conduit trainer will allow the student to demonstrate hands-on competency as a result from the knowledge gained through the Conduit Fabrication Courses. The student is required to apply the skills to fabricate conduit bends and conduit routing as detailed in the Conduit Lab Manual. Free construction drawings (details and material list) are located in each conduit course under the Instructor Resources. This downloadable file is called "Mobile Work Station: Drawings and Components – Facilitator's Guide".

In addition, materials to build a basic mobile workstation can be purchased from *electrical training ALLIANCE's* platinum level training partner GraybaR. Click [here](#) to learn more and to contact the GraybaR National JATC/AJATC support team by phone or email.



For additional information, visit qr.njatcdb.org Item #8969



Conduit Bending and Fabrication Lab Manual

J204L \$ 26.08

The lab manual provides real world applications of common bending scenarios. Although the "Conduit Fabrication Mobile Workstation" is not necessary to complete this lab manual, all of the labs are written so that they can be installed on the mobile trainer.

Conduit System Fabrication 1 - CML and Conduit System Fabrication 2 - CML - See Page 35 for more information.

CRANE SIMULATOR

Mobile Crane Simulator

Smart Training Technology allows operators to train within a virtual environment that's based on real data and real machines. This includes:

- Crane boom and jib bending/torquing
- Stability and overloading/overturning risks
- Cable collisions with worksite obstructions and the crane boom
- Pendulums, snags, and collisions

Thanks to its realism, the Mobile Crane Simulator allows trainees to operate in a challenging environment where they can explore the capacity and limits of the mobile crane, and safely experience scenarios such as critical lifts that are potentially life-altering in the real world.



FIRE ALARM



The *electrical training ALLIANCE* Fire Alarm Lab Manual

J211L.B \$ 64.56

To help JATCs teach all of the processes that will go into making a Fire Alarm Installation successful, the *electrical training ALLIANCE* has developed the *electrical training ALLIANCE* Fire Alarm Lab Manual. This lab manual helps take the students through the step-by-step processes needed to install the Fire Alarm System on the *electrical training ALLIANCE* Fire Alarm Trainer, making the transition from those tasks utilized on the trainer easily transition to real-world installations.

The kits are all based on Fire-Lite's new addressable Fire Alarm Control Panel, the MS- 9200UDLS providing a solid foundation on which JATCs can build or construct a real-life addressable Fire Alarm System. While there is an assortment of Fire-Alarm manufacturers in the commercial Fire Alarm equipment arena, the Fire-Lite System being utilized will help the students understand the fundamentals of installing, programming and troubleshooting their own Fire Alarm system. The same basic concepts learned while working on this equipment is easily transferred to any of the manufacturers in the Fire Alarm marketplace. It is always important to remember that by gaining an understanding of the key elements and concepts associated with the installation, how a specific manufacturer performs that same function is less critical in the learning process. Fire-Lite, a division on Honeywell has worked hand-in-hand with the *electrical training ALLIANCE* to provide the most comprehensive Fire Alarm Training Package available to our JATCs. Not only does the equipment provide the correct cross-section of installation possibilities, the folks at Fire-Lite have sharpened their pencils to allow us to bring this kit to all JATCs at an extremely affordable price.

The Fire Alarm Kits provide an assortment of components typically found in most commercial fire alarm system installations. Utilizing these components, JATCs can customize and modify the installations to address specific needs within their local areas.

FIRE ALARM

The Hardware: NJATC Fire Alarm Control Panel

D090K Call Customer Service for pricing.

Using the Fire Alarm Equipment listed to the right, JATCs can build a working Fire Alarm System on a cart or plywood backboard that they supply and have spare parts for those items such as the smoke detectors or relay modules that can wear out with repeated use. JATCs will need to provide miscellaneous hardware such as the 4" square boxes and wall cases that are required for mounting some of the devices, the 2C-18 unshielded fire alarm cable, 2C-14 unshielded fire alarm cable, a PS 2 keyboard (available locally) for programming and any tools and test equipment that is necessary such as screwdrivers, strippers, needle nose pliers and a Multimeter for troubleshooting.



Description	Part Number	Quantity
Addressable FA Control Unit w/ DACT	ES-200X	1
80 Character Remote Annunciator	LCD-80F	1
Addressable Thermal Detector	H365	2
Multi Sensor Intel. Smoke Detector	SD365	7
Addressable Manual Pull Station	BG-12LX	3
Single Monitor Module	MMF-300	4
Dual Monitor Module	MDF-300	2
Mini Monitor Module	MMF-301	3
Addressable Relay Module	CRF-300	5
Intel. Low Flow Photo Duct Detector	D355PL	1
Remote Test Switch	RTS151	1
Conventional Heat w/ ROR 134	5601P	1
Waterflow Switch	WFD20N	1
OS&Y Valve Supervisory Switch	OSY2	1
SpectrAlert Advanced Chime Strobe	CHSRL	3
Conventional Pull Station	BG-12	1
Sealed Lead-Acid Battery 12V,7Ah (5 pack)	BAT-1270-BP	1

INSTRUMENTATION

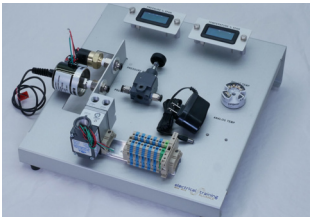


Instrumentation Desktop Trainer

The *electrical training ALLIANCE* recognizes the need for increased hands-on education at the local training center. Instrumentation Desktop Trainers are currently in development. These cost-conscious trainers are designed to supplement existing training programs and as an alternative for the program who currently is unable to offer hands on training.

Description	Part Number
IDT Trainer Kit (Qty 1-4)	LUN200K
IDT Trainer Kit (Qty 5)	LUN200K-5Pack
Lab Manual	IDTLM01

Call Customer Service for pricing.



Instrumentation Lab Manual

J297LMIG \$ 73.76 **J297LM** \$ 52.44

Lab manuals to go with the existing instrumentation legacy trainer are available.



HART Modem (USB)

HARTUSB \$683.33

This unit allows the access to HART smart instrumentation equipment features without the need for costly communicators when used for training. This device does require a free software download in order to operate.

Update packages have been created to reconstruct existing trainers with new frames and control packages.



Should you have any questions, please contact Jason Lunardini at lunar@etalliance.org or by phone at 301.715.2312.

PROGRAMMABLE LOGIC RELAY TRAINER KIT

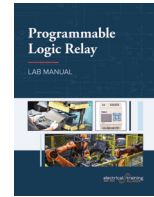
Programmable Logic Relay Trainer Kit

This system was put together to offer a basic programmable controller option complete with 10 initial labs to be used as a program may wish. This system is not intended to replace current Programmable Logic Controller (PLC) training, only to supplement it in the classroom.

The trainer will arrive as a complete kit with all necessary components and hardware in order to be assembled by students as an initial lab. The console is heavy duty, clear anodized aluminum offering a clear acrylic bottom to allow viewing of components. The system will offer spare provisions for additional devices to be mounted should a

program wish. Additionally, each console includes a temperature transmitter and thermocouple wire to create a temperature sensor and offer analog control.

A word of caution, PLRs do not have the processing capability of a PLC and there are key functions only available in a PLC. However, the simplicity of a PLR and the combination of free programming software offers a great transition from conventional electromechanical control to digital control systems. This simplicity also allows courses such as Instrumentation or Building Automation an ability to demonstrate some control concepts.



Features:

- Durable aluminum enclosure, with screen printed tagging and labels
- Compact footprint, easily stores on side with integrated handles
- Designed to supplement existing curriculum for hands on lab reinforcement
- Free software download, no recurring license fees

Includes:

- All components necessary to assembly into a complete trainer
- Lab Manual with 10 labs including both binary and analog control
- Temperature transmitter and thermocouple for analog lab exercises



Description	Part Number
PLR Trainer Kit (Qty 1-4)	LUN100K
PLR Trainer Kit (Qty 5Pack)	LUN100K-5+
PLR Manual	PLRM

Call Customer Service for pricing.

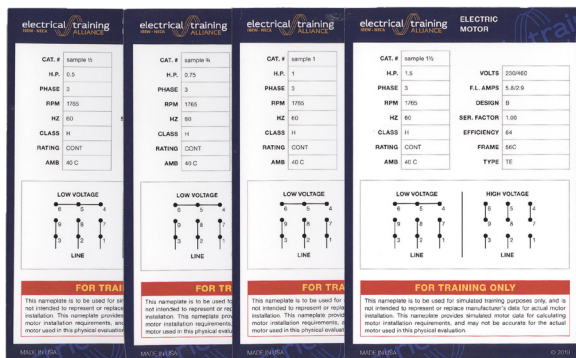
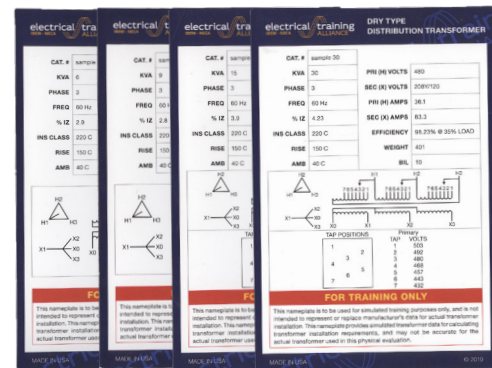
Should you have any technical questions, please contact Jason Lunardini at lunar@etalliance.org or by phone at 301.715.2312.

TRANSFORMER AND MOTOR MAGNET KIT

Transformer and Motor Magnet Kit
PEVALMK \$ 17.47

The Transformer and Motor Magnet Kit is available for use in training and for Craft Certification. This kit is packaged in a canvas bag with a zipper to protect the eight magnets that are included with the kit. Each kit contains four 3-phase transformer nameplates, sizes 6 kVA, 9 kVA, 15 kVA, and 30 kVA, for use with transformer training or evaluations. In addition, each kit contains four 3-phase motor nameplates, sizes ½ HP, ¾ HP, 1 HP, and 1½ HP, for use with motor training or evaluations. These

magnetic nameplates are designed to temporarily redesignate the electrical specifications for transformers or motors used in training or for Craft Certification evaluations. These magnetic nameplates are supported and provide evaluators flexibility in completing both the CCPE.TI (Transformer Installation) Incremental Evaluation and the CCPE.MMC (Motor and Motor Control) Incremental Evaluation.





REQUEST FOR COMPLETION DIPLOMA



electrical training ALLIANCE

Todd Stafford, Executive Director

5001 Howerton Way, Suite N, Bowie, MD 20715
Phone: 301-715-2311 / Fax: 301-715-2301

send completed form to: tfitzgerald@electricaltrainingalliance.org

Current Date		Date Needed	
Program Number		Approved by Signature	
JATC Name		Approved By	
Address			
City		State	
Zip Code		JATC Chairman Signature	
Phone Number		JATC Chairman	
Email		JATC Secretary Signature	
		JATC Secretary	

The following Completion Certificates are for

1. A separate form must be used for each classification.
2. This form must be submitted to the *electrical training ALLIANCE* before Certificates will be issued.
3. Replacement certificates are available for \$10.00 each (a check made payable to the *electrical training ALLIANCE* and this completed form must accompany such requests for each replacement certificate).

☐ Replacement Certificate

NAME (the way it is to appear on certificate)	COURSE COMPLETION DATE



To access the digital form, visit
qr.njatcdb.org
Item #4928



To access the digital spreadsheet, visit
qr.njatcdb.org
Item #10243

Program Number

COMPLETION CERTIFICATE RECIPIENTS

NAME <i>(the way it is to appear on certificate)</i>	COURSE COMPLETION DATE

send completed form to: tf@etalliance.org

Print

Reset Form



To access the digital spreadsheet, visit qr.njatcdb.org Item #10243

REQUEST FOR JOURNEYMAN TRAINING COURSE COMPLETION CERTIFICATES

electrical training ALLIANCE

Todd Stafford, Executive Director
Phone: 301.715.2311

5001 Howerton Way, Suite N, Bowie, MD 20715

Current Date		Please specify date needed	
Program Number		Approved By	
JATC Name		E-Mail	
Address		JATC Chairman	
City State Zip Code		JATC Chairman's Signature	
Phone Number		JATC Secretary's Signature	
Instructor's Signature		JATC Secretary	
Instructor's Name			

The individuals listed (on next page) have satisfactorily completed a Journeyman Training course:

Course Title (in full)	
Course Item # from <i>electrical training</i> ALLIANCE Bulletin or Catalog	

- o A separate form must be used for each course.
- o This form must be submitted to the *electrical training* ALLIANCE before certificates will be issued.
- o Replacement certificates are available for \$5 each. (A check made payable to the *electrical training* ALLIANCE AND this completed form must be returned to the *electrical training* ALLIANCE.)
- o A participant may request CEU's for the course. (Cost: \$10 per student) SS# is a must. Please include CEU form.

☐ Mark to indicate a replacement certificate (cost \$5)

Date Needed



To download a copy
of this form, visit
qr.njatcdb.org
Item #4927



To access the digital
spreadsheet, visit
qr.njatcdb.org
Item #10243

AMERICAN COUNCIL ON EDUCATION (ACE) COLLEGE CREDIT

The *electrical training ALLIANCE* courses have been evaluated by the American Council on Education (ACE) for the establishment of recommended college credit for each year of the apprenticeship program. When you register your apprenticeship training with ACE through the *electrical training ALLIANCE*, you are eligible to receive a transcript which you can take to a college/university of your choice to receive college credit. The availability and amount of credit will be dependent on the college/university you apply to, and the type of degree you are seeking. Below are the steps to help you establish a digital record, access your credentials and send an official transcript.

The JATC/AJATC Chairman and Secretary must sign this form in order to process the request.

Step 1: Submitting Your Application

Submit your College Credit Application and \$45.00 processing fee made payable to the *electrical training ALLIANCE*. Payment can be made with a personal check, JATC check, money order, or cashier's check. Please remember to include an email address on the form. Once your application is processed an email will be sent from the Credly platform. Once you receive the email, you can then go to step 2.

Step 2: Create an Account on Credly

Once your application has been approved and processed by the *electrical training ALLIANCE*, you will then receive an email from Credly to create an account and accept the Terms of Service. Credly assigns digital badges. When you accept the badge, you will have the option to set it as public or private. Only public badges will be shown on your transcript.

Step 3: Sending Official Transcripts

In your account menu in Credly, you can select the option to Send Transcript. Fill out the forms carefully — remember you are sending an official academic document. You will need a receiving email address for electronic delivery of the transcript. Before sending the transcript, click “View transcript” to download a copy for yourself so that you can check that all of your courses display correctly. Do not send this copy to schools yourself — colleges and universities will not accept transcripts that come from students.

RESOURCES

The [Credly Help Center](#) has many guides for how to use your digital credentials, but if you can't find the answers to a technical question, you can submit a [help request](#). The ACE [Student Resource Center](#) can also help if you are having trouble communicating with an institution or if they have questions about the transcript you sent. You can email the resource center at credit@acenet.edu.

It is important to note that having ACE-recommended credits does not guarantee that the credits will be accepted by a college or applied towards a degree. Some colleges may not grant credit for prior learning or may accept them only as elective credits.



TODD STAFFORD, EXECUTIVE DIRECTOR

ACE COLLEGE CREDIT APPLICATION

To earn college credit, simply complete this form. You must enter *each year* of apprenticeship for which you are applying. You may apply after successfully completing each year, or wait until you have completed your apprenticeship. Mail the completed form to the *electrical training ALLIANCE* along with a check for any applicable fees (payable to *electrical training ALLIANCE*). There is a **one-time** registration fee of \$45.00 per student. The JATC/AJATC Chairman and Secretary **MUST** certify by signing the form to validate the application.

STUDENT COMPLETES THIS SECTION: *Please print clearly and complete all information.*

LAST NAME

FIRST NAME

E-MAIL ADDRESS

() -
PHONE NUMBER

I authorize the submission of this form and other information about my course participation to The American Council on Education (ACE). ACE will record, maintain and update this information as necessary.

SIGNATURE (do not print)

DATE

COURSE CREDITS REQUESTED: *Indicate the completed course(s) you wish to receive credit for; use the list on the following page.*

Course Number	Date Completed Ex.: 01/02/03		Course Number	Date Completed Ex.: 01/02/03

JATC/AJATC COMMITTEE CHAIRMAN & SECRETARY COMPLETE THIS SECTION

The following signatures certify that the individual listed on this form has successfully completed the course(s) itemized above, meeting all requirements of completion as outlined in the Apprenticeship Standards.

JATC/AJATC Program Number

Committee Chairman

Committee Secretary

Attention: Terri Fitzgerald
electrical training ALLIANCE
5001 Howerton Way, Suite N, Bowie, MD 20715
Phone: 301.715.2300 Fax: 301.715.2301
Office Hours: 8:45am - 4:45pm ET M-F



To download a copy
of this form, visit
qr.njatcdb.org
Item #4930

ACE College Credit Course List

Choose from this list of course numbers for the completed course(s) you wish to receive credit.

Course Title	Completion Date	Course ID	Length (Hours)	Semester Hour Credit
NJATC Apprentice Inside Wiremen 1st Year Course	(12/1/82-10/31/97)	0001	130	7
NJATC Apprentice Inside Wiremen 2nd Year Course	(12/1/82-10/31/97)	0002	160	9
NJATC Apprentice Inside Wiremen 3rd Year Course	(12/1/82-10/31/97)	0003	160	12
NJATC Apprentice Inside Wiremen 4th Year Course	(12/1/82-10/31/97)	0004	160	11
NJATC Apprentice Inside Wiremen 5th Year Course	(12/1/82-10/31/97)	0005	160	9
NJATC Apprentice Inside Wiremen 1st Year Course	(11/1/97-7/31/00)	0001	180	4
NJATC Apprentice Inside Wiremen 2nd Year Course	(11/1/97-7/31/00)	0002	180	9
NJATC Apprentice Inside Wiremen 3rd Year Course	(11/1/97-7/31/00)	0003	180	12
NJATC Apprentice Inside Wiremen 4th Year Course	(11/1/97-7/31/00)	0004	180	13
NJATC Apprentice Inside Wiremen 5th Year Course	(11/1/97-7/31/00)	0005	180	12
NJATC Apprentice Inside Wiremen 1st Year Course	(8/1/00-6/30/05)	0001	200	9
NJATC Apprentice Inside Wiremen 2nd Year Course	(8/1/00-6/30/05)	0002	200	10
NJATC Apprentice Inside Wiremen 3rd Year Course	(8/1/00-6/30/05)	0003	180	11
NJATC Apprentice Inside Wiremen 4th Year Course	(8/1/00-6/30/05)	0004	180	10
NJATC Apprentice Inside Wiremen 5th Year Course	(8/1/00-6/30/05)	0005	180	15
NJATC Apprentice Inside Wiremen 1st Year Course	(7/1/05-6/30/15)	0001	200	8
NJATC Apprentice Inside Wiremen 2nd Year Course	(7/1/05-6/30/15)	0002	200	9
NJATC Apprentice Inside Wiremen 3rd Year Course	(7/1/05-6/30/15)	0003	180	12
NJATC Apprentice Inside Wiremen 4th Year Course	(7/1/05-6/30/15)	0004	180	10
NJATC Apprentice Inside Wiremen 5th Year Course	(7/1/05-6/30/15)	0005	180	13
1st Year Inside Wireman Blended Learning Bundle	(8/1/12-7/31/17)	0024	200	8
2nd Year Inside Wireman Blended Learning Bundle	(8/1/13-7/31/17)	0025	200	7
3rd Year Inside Wireman Blended Learning Bundle	(8/1/13-7/31/17)	0026	180	10
4th Year Inside Wireman Blended Learning Bundle	(8/1/13-7/31/17)	0027	180	10
5th Year Inside Wireman Blended Learning Bundle	(8/1/13-1/31/18)	0028	180	14
1st Year Inside Blended Learning Bundle	(8/1/17-4/30/21)	0024	200	6
2nd Year Inside Blended Learning Bundle	(8/1/17-4/30/21)	0025	200	7
3rd Year Inside Blended Learning Bundle	(8/1/17-4/30/21)	0026	180	9
4th Year Inside Blended Learning Bundle	(8/1/17-4/30/21)	0027	180	12
5th Year Inside Blended Learning Bundle	(2/1/18-4/30/21)	0028	180	9

Course Title	Completion Date	Course ID	Length (Hours)	Semester Hour Credit
1st Year Inside Wireman Blended Learning Bundle	(5/1/21-9/30/25)	0024	200	11
2nd Year Inside Wireman Blended Learning Bundle	(5/1/21-9/30/25)	0025	200	14
3rd Year Inside Wireman Blended Learning Bundle	(5/1/21-9/30/25)	0026	180	9
4th Year Inside Wireman Blended Learning Bundle	(5/1/21-9/30/25)	0027	180	12
5th Year Inside Wireman Blended Learning Bundle	(5/1/21-9/30/25)	0028	180	3
NJATC Apprentice Installer/Technician 1st Year Course	(2/1/98-7/31/13)	0009	160	10
NJATC Apprentice Installer/Technician 2nd Year Course	(2/1/98-6/30/15)	0010	160	14
NJATC Apprentice Installer/Technician 3rd Year Course	(2/1/98-6/30/15)	0011	160	13
1st Year Installer/Technician Bundle	(9/1/13-7/31/17)	0029	180	11
2nd Year Installer/Technician Bundle	(9/1/13-7/31/17)	0030	180	14
3rd Year Installer/Technician Bundle	(9/1/13-7/31/17)	0031	180	12
1st Year Installer/Technician Bundle	(8/1/17-4/30/21)	0029	180	9
2nd Year Installer/Technician Bundle	(8/1/17-4/30/21)	0030	180	9
3rd Year Installer/Technician Bundle	(8/1/17-4/30/21)	0031	180	9
1st Year Installer/Technician Bundle	(5/1/21-9/30/25)	0029	180	10
2nd Year Installer/Technician Bundle	(5/1/21-9/30/25)	0030	180	5
3rd Year Installer/Technician Bundle	(5/1/21-9/30/25)	0031	180	0
NJATC Apprentice Residential Wireman 1st Year Course	(4/1/98 - 7/31/13)	0012	180	9
NJATC Apprentice Residential Wireman 2nd Year Course	(4/1/98 - 7/31/13)	0013	180	16
NJATC Apprentice Residential Wireman 3rd Year Course	(4/1/98 - 7/31/13)	0014	180	12
1st Year Residential Bundle	(9/1/13-7/31/17)	0032	180	11
2nd Year Residential Bundle	(9/1/13-7/31/17)	0033	180	9
3rd Year Residential Bundle	(9/1/13-7/31/17)	0034	180	10
1st Year Residential Bundle	(8/1/17-4/30/21)	0032	180	11
2nd Year Residential Bundle	(8/1/17-4/30/21)	0033	180	9
3rd Year Residential Bundle	(8/1/17-4/30/21)	0034	180	9
1st Year Residential Bundle	(5/1/21-9/30/25)	0032	180	9
2nd Year Residential Bundle	(5/1/21-9/30/25)	0033	180	9
3rd Year Residential Bundle	(5/1/21-9/30/25)	0034	180	12

Course Title	Completion Date	Course ID	Length (Hours)	Semester Hour Credit
1st Year Lineman Bundle	(11/1/84-7/31/00)	0006	160	10
2nd Year Lineman Bundle	(11/1/84-7/31/00)	0007	160	11
3rd Year Lineman Bundle	(11/1/84-7/31/00)	0008	160	9
1st Year Lineman Bundle	(8/1/00 - 7/31/17)	0006	160	7
2nd Year Lineman Bundle	(8/1/00 - 7/31/17)	0007	200	7
3rd Year Lineman Bundle	(8/1/00 - 7/31/17)	0008	160	10
1st Year Lineman Bundle	(8/1/17 - 1/31/21)	0006	160	7
2nd Year Lineman Bundle	(8/1/17 - 1/31/21)	0007	200	12
3rd Year Lineman Bundle	(8/1/17 - 1/31/21)	0008	160	9
1st Year Lineman Bundle	(2/1/16-4/30/26)	0106	160	8
2nd Year Lineman Bundle	(2/1/16-4/30/26)	0107	200	20
3rd Year Lineman Bundle	(2/1/16-4/30/26)	0108	160	29
1st Year Substation Blended Learning Bundle	(1/1/21-12/31/24)	0080	160	18
2nd Year Substation Blended Learning Bundle	(1/1/21-12/31/24)	0081	200	15
3rd Year Substation Blended Learning Bundle	(1/1/21-12/31/24)	0082	160	15
AC Theory Advance Course	(8/1/13-1/31/21)	0053	8	1
AC Theory, Level III	(5/1/21-9/3/25)	0053	16	1
Access Control, Level I	(8/1/17-1/31/21)	0073	16	1
Audio, Video, and Streaming Media Technologies	(5/1/21-9/30/25)	0086	26	1
Building a Foundation in Mathematics, Level I	(5/1/21-9/30/25)	0093	20	1
Building a Foundation in Mathematics, Level II	(5/1/21-9/30/25)	0094	27	1
Building Automation Control Devices J238SW	(8/1/13-3/31/18)	0054	12	1
Building Automation Advanced Courses J238LM.H1; J238LM.H2; J239LM.I1B; J239LM.I1L; J239LM.I2	(8/1/13 - 1/31/21)	0036	80	6
Building Automation 1: Control Devices and Applications Advanced Course J238LM.H1; J238LM.H2	(5/1/21-9/30/25)	0054	40	3
Building Automation 2: System Integration with Open Protocols Advanced Courses - J239LM.I1B; J239LM.I1L; J239LM.I2	(5/1/21-9/30/25)	0036	80	3
CCTV Advanced Courses	(8/1/13-1/31/21)	0037	32	2
Code and Practices 3	(8/1/05-7/31/13)	0016	40	2
Code and Practices 5	(8/1/13-7/31/17)	0055	12	1
Code and Practices Advance Course Bundle - J236LM.J1; J227LM.J3	(8/1/13-1/31/21)	0038	16	1

Course Title	Completion Date	Course ID	Length (Hours)	Semester Hour Credit
Code, Standards and Practices and Electrical Code Calculations Advanced Course Bundle - J236LM.L; J237LM.L; J227LM.L2; J227LM.L3	(5/1/21-9/30/25)	0098	32	3
DC Theory, Level II (13-18) *Must complete Levels I and II	(8/1/13-3/31/18)	0056	16	1
DC Theory, Level V	(5/1/21-9/30/25)	0056	16	1
Digital Electronics	(8/1/05-7/31/13)	0017	60	3
Digital Electronics	(8/1/13-7/31/17)	0057	38	3
Digital Electronics	(8/1/17-9/30/25)	0057	38	1
Distributed Generation	(8/1/05-7/31/13)	0018	20	1
Distributed Generation, Level I	(8/1/13-1/31/21)	0058	24	2
Distributed Generation, Level I	(5/1/21-9/30/25)	0058	24	1
Electrical Safety-Related Work Practices, Level III, Based on the 2015 70E	(8/1/17-7/31/20)	0074	8	0
Electrical Safety-Related Work Practices, Level III, Based on the 2015 70E (Adv.)	(5/1/21-9/30/25)	0074	8	1
Electronic Access Control, Level I and II	(5/1/21-9/30/25)	0104	31	2
Fiber Optics, Level I	(8/1/17-1/31/21)	0075	12	2
Fiber Optics, Level I	(5/1/21-9/30/25)	0075	12	1
Fire Alarm	(8/1/05-7/31/13)	0019	25	1
Fire Alarm Systems, Level I	(5/1/21-9/30/25)	0083	23	1
Fire Alarm Systems, Level II	(8/1/13-9/30/25)	0059	16	1
Hazardous Locations, Level I *Must complete Levels I and II	(8/1/13-9/30/25)	0060	8	1
Hazardous Locations, Level II *Must complete Levels I and II	(8/1/13-4/30/17)	0039	4	1
Health Care Facility Electrical Systems, Level I and II, Based on the NFPA 99 and 2017 NEC	(5/1/21-9/30/25)	0091	16	1
Health Care Systems, Level I, Based on the 2014 NEC	(8/1/13-7/31/17)	0061	8	1
Health Care Systems, Level II	(8/1/13-1/31/21)	0040	8	1
Instrumentation	(8/1/05-7/31/13)	0020	100	4
Instrumentation	(8/1/13-4/30/21)	0041	40	3
Instrumentation Introduction, Modules 1 and 2	(5/1/21-9/30/25)	0088	80	2
Intelligent Network Video, Level I, II, and III	(5/1/21-9/30/25)	0090	23	1
Introduction to Network Technologies, Levels I and II (Adv.)	(5/1/21-9/30/25)	0089	28	3
Intrusion Detection, Level I	(8/1/17-1/31/21)	0076	16	2
Intrusion Detection, Level I	(5/1/21-9/30/25)	0096	11	1
Lighting Essentials, Level I	(8/1/13-1/31/21)	0063	16	1
Lighting Essentials, Level II	(8/1/13-1/31/21)	0042	8	1
Lighting Essentials, Level I and II	(5/1/21-9/30/25)	0092	24	1
Lightning Protection, Level I	(8/1/13-7/31/17)	0062	8	1
Lightning Protection, Level I	(8/1/17-1/31/21)	0062	8	2
Lightning Protection, Level I	(5/1/21-9/30/25)	0062	8	1

Course Title	Completion Date	Course ID	Length (Hours)	Semester Hour Credit
Local Area Networks	(8/1/13-1/31/21)	0043	40	3
Motor Control, Level III	(8/1/13-9/30/25)	0064	12	1
Motors	(8/1/05-7/31/13)	0021	44	3
Motors, Level I	(5/1/21-9/30/25)	0084	18	1
Motors, Level II	(8/1/13-1/31/21)	0065	16	1
Motors, Level III	(2/1/21-1/31/24)	0085	41	3
Nurse Call Systems, Level I	(8/1/13-7/31/2020)	0044	4	0
Paging Systems, Level I	(8/1/13-9/30/25)	0045	8	1
Photovoltaics 1	(8/1/2013-3/31/18)	0066	24	2
Photovoltaics 2	(8/1/2013-3/31/18)	0046	16	1
Photovoltaics, Levels I and Level II	(8/1/2017-1/31/21)	0078	40	3
Photovoltaics	(5/1/21-9/30/25)	0102	40	3
Power Quality, Level I	(8/1/13-9/30/25)	0067	16	1
Programmable Logic Controllers, Level I	(8/1/13-1/31/21)	0068	12	1
Programmable Logic Controllers, Level II	(8/1/13-1/31/21)	0047	24	2
Introduction to Programmable Logic Controllers	(5/1/21-9/30/25)	0105	40	3
Residential Automation Systems, Level I	(5/1/21-9/30/25)	0087	11	1
Residential Cabling, Level I	(5/1/21-9/30/25)	0100	13	1
Residential Telephony, Level I	(5/1/21-9/30/25)	0095	8	0
RF Communications, Level I	(8/1/13-1/31/21)	0048	16	1
Security Systems 2	(8/1/13-4/30/17)	0049	16	1
Semiconductors, Level I	(8/1/13-7/31/17)	0070	16	1
Semiconductors, Level I	(8/1/17-1/31/21)	0070	16	2
Semiconductors, Level II *Must complete Levels I and II	(8/1/13-1/31/21)	0050	20	2
Semiconductors, Levels I and II	(5/1/21-9/30/25)	0103	36	3
Sound Reinforcement, Level I	(8/1/13-1/31/21)	0051	24	2
Sound Reinforcement Systems, Levels I and II	(5/1/21-9/30/25)	0097	42	3
Structured Cabling	(8/1/05-7/31/13)	0022	40	2
Structured Cabling, Level I	(8/1/13-9/30/25)	0071	24	2
Tech Math	(8/1/96-12/31/15)	0015	40	3
Telephone & Security Basics	(8/1/05-12/31/15)	0023	40	1
Telephony	(8/1/13-4/30/17)	0052	16	2
Test Instruments, Level I	(8/1/13-9/30/25)	0077	16	1
Transformers, Level I	(5/1/21-9/30/25)	0099	30	2
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