



October 25, 2024

Computer-Mediated Learning (CML)

As the education needs of apprentices, CW/CE, and Journeylevel workers alike continues to evolve, so has the methods and manners for which training is available. Previously, the *electrical training ALLIANCE* (etA) offered blended learning for bringing technology and web-based education to NECA-IBEW electricians of all classifications. This has evolved to Computer-Mediated Learning (CML).

CML was launched with the support of both the NECA and IBEW Workforce Development National Task Force. The NECA side of the Workforce Development Task Force is led by a NECA District Vice-President (currently Shawn Smith, District 5), NECA's two etA Trustees, and a contractor member from each NECA District as appointed by the respective District Vice-President.

CML continues to have the full support of NECA, IBEW, and etA leadership as evident by the inclusion in the September 30, 2024 [Joint Memo](#) *Secure the Future of Our Industry Through Apprenticeship*.

CML continues to be built by the training subject matter experts of the electrical industry, the etA, with support from a full CORE/CML committee that meets twice in-person annually and with several working groups that meet monthly.

To date, only ~30 NECA-IBEW Inside JATC programs are utilizing CML at a high user level. A recent survey conducted by an CML working group of JATCs not utilizing CML identified a general lack of awareness of the benefits CML could offer. It also identified a lack of support and understanding from JATC Trustees to pursue migration to CML. A survey of programs utilizing CML indicated programs have seen an improvement in test scores, a better use of in-person classroom time, and a smooth integration with support from the etA.

Training Benefits

Time value

- Time is now available for focused lab and performance evaluation at the training center.
- Each apprentice is able to receive individual skills training to close any skill gaps.
- Skills training is focused on at the direction of the JATC as driven by the Trustees based on the immediate and future needs within each jurisdiction.

The training center's purpose is enhanced

- JATC facilities can reallocate resources and classroom time to incorporate more hands-on training with modern materials, tools, and equipment.

Instructors value is amplified

- Instructors time is re-allocated to hands-on and lab training to support the vital skills development and competency in evaluation to train the highest skilled, safest, and most productive electrical workforce in the United States.

Education Benefits

Education quality

- Immersive and engaging content is built to support each learner of all classifications, including improved accessibility.
- Increased value of group education as each learner is required to meet all proficiency standards.
- As the learner proves proficiency on coursework, the next training exercise is unlocked.
- Instructors can direct their group and individual communications to the exact area of the learner.
- Proctored testing at the training center evaluates the apprentices who proved proficiency via CML is the one that completed assigned coursework.

CML is built for students

- The learner that requires less time is allowed to proceed.
- The learner that requires more time is afforded the time needed.
- The Instructor is present and supports delivery.
- Nonconcurrent starting of training can allow training to be administered the day an apprentice qualifies.
- Administration can be revised to meet the needs of the JATC

As of publishing of this bulletin, nearly all of the 612 CORE class hours are already on CML or will be completed by the end of 2024. The etA estimates all courses will be on CML by the end of 2025. A guide of CORE classes on CML versus the blended learning format is attached to this bulletin.

Additionally, signatory employers can utilize CML education within their shop should they be willing to undertake training and associated costs directly. This is not a requirement and may not be appropriate for all training needs. An employer should contact their local JATC for access and onboarding first. Should there be any issues with assistance they are recommended to contact the NECA Labor Relations department through their NECA Chapter and NECA Field Representative for further assistance.

NECA's Labor Relations team continues to advocate for the enhancement of training of the skilled IBEW electricians working for NECA members across the country and encourages all JATC programs to critically evaluate opportunities to implement CML into the training toolbox of their jurisdiction.

This material is for informational purposes only. The material is general and is not intended to be legal advice. It should not be relied upon or used without consulting a lawyer to consider your specific circumstances, possible changes to applicable laws, applicable CBAs, prime contracts, subcontracts, rules and regulations and other legal issues. Receipt of this material does not establish an attorney-client relationship.

720 HOUR CORE+ADVANCED APPRENTICE WORKSHEET

The following table shows the Required 22 Core Topics and the corresponding courses that must be completed in either Blended Learning (BL) or Computer-Mediated Learning (CML) mode. The delivery method column indicates which mode is available for each topic. Programs should choose one mode for each topic and use it consistently for all apprentices. For example, if a program chooses CML for Construction Drawings then all apprentices should complete that and Construction Documentation and not mix in the BL versions of Blueprints. If modes are mixed within a topic, reference materials and concepts may get missed, duplicated, or placed out of order.

Use this worksheet to identify the CML course(s) or Blended Learning equivalent(s) the student has taken to help identify their remaining courses needed for the 720 hour model.

Student Name:

Date:

INSIDE CORE - 612 HOURS

		Computer-Mediated Learning Courseware	OR	Previous Blended Learning Equivalent
Topic	Typical Year	Course	Typical Year	Course
- <input type="checkbox"/>	1	<input type="checkbox"/> PTSI Online Learning System Review	1	<input type="checkbox"/> None
- <input type="checkbox"/>	1	<input type="checkbox"/> Reading Comprehension - CML	1	<input type="checkbox"/> None
- <input type="checkbox"/>	1	<input type="checkbox"/> Tech Math - CML	1	<input type="checkbox"/> None
- <input type="checkbox"/>	1	<input type="checkbox"/> Harassment Prevention: Awareness and Responsibilities - CML	1	<input type="checkbox"/> None
1 <input type="checkbox"/>	1	<input type="checkbox"/> Constructing Your Future - CML	1	<input type="checkbox"/> Orientation Level I
	1	<input type="checkbox"/> Introduction to Apprenticeship - CML	2	<input type="checkbox"/> Orientation Level II
	2	<input type="checkbox"/> IBEW Orientation - BL	4	<input type="checkbox"/> Orientation Level III
2 <input type="checkbox"/>	1	<input type="checkbox"/> Electrical Job Information 1 - CML	1	<input type="checkbox"/> Job Information, Level I
			1	<input type="checkbox"/> Job Information, Level II
3 <input type="checkbox"/>	1	<input type="checkbox"/> Applied Codeology, Navigation the 2023 NEC® - CML	1	<input type="checkbox"/> Codeology, Level I Based on the 20## NEC®
4 <input type="checkbox"/>	1	<input type="checkbox"/> Construction Drawings - CML	1	<input type="checkbox"/> Blueprints, Level I
			2	<input type="checkbox"/> Blueprints, Level II
	3	<input type="checkbox"/> Construction Documentation - CML	3	<input type="checkbox"/> Blueprints, Level III
5 <input type="checkbox"/>	1	<input type="checkbox"/> Electrical Theory 1: Direct Current - CML	1	<input type="checkbox"/> DC Theory, Level I
			1	<input type="checkbox"/> DC Theory, Level II
			1	<input type="checkbox"/> DC Theory, Level III
			1	<input type="checkbox"/> DC Theory, Level IV
			1	<input type="checkbox"/> DC Theory, Level V
6 <input type="checkbox"/>	1	<input type="checkbox"/> Conduit System Fabrication 1 - CML	1	<input type="checkbox"/> Conduit Fabrication Level I
	2	<input type="checkbox"/> Conduit System Fabrication 2 - CML	2	<input type="checkbox"/> Conduit Fabrication Level II

INSIDE CORE - 612 HOURS (continued)

		OR		
Computer-Mediated Learning Courseware			Previous Blended Learning Equivalent	
Topic	Typical Year Course		Typical Year	Course
7 <input type="checkbox"/>	1 <input type="checkbox"/> Code, Standards, and Practices 1, Based on the 2023 NEC - CML		1	<input type="checkbox"/> Code, Standards, and Practices 1, Based on the 2023 NEC
8 <input type="checkbox"/>	1 <input type="checkbox"/> Code, Standards, and Practices 2, Based on the 2023 NEC - CML		1	<input type="checkbox"/> Code, Standards, and Practices 2, Based on the 2023 NEC
9 <input type="checkbox"/>	2 <input type="checkbox"/> Code, Standards, and Practices 3, Based on the 2023 NEC - CML		2	<input type="checkbox"/> Code, Standards, and Practices 3, Based on the 2023 NEC
10 <input type="checkbox"/>	3 <input type="checkbox"/> Code, Standards, and Practices 4, Based on the 2023 NEC - CML		3	<input type="checkbox"/> Code, Standards, and Practices 4, Based on the 2023 NEC
11 <input type="checkbox"/>	4 <input type="checkbox"/> Code, Standards, and Practices 5, Based on the 2023 NEC - CML		4	<input type="checkbox"/> Code, Standards, and Practices 5, Based on the 2023 NEC
12 <input type="checkbox"/>	2 <input type="checkbox"/> Electrical Safety-Related Work Practices, Based on the 2024 70E - CML		2	<input type="checkbox"/> Electrical Safety-Related Work Practices, Level I, Based on the 20## 70E
			2	<input type="checkbox"/> Electrical Safety-Related Work Practices, Level II, Based on the 20## 70E
13 <input type="checkbox"/>	2 <input type="checkbox"/> Electrical Theory 2: AC Systems - CML		2	<input type="checkbox"/> AC Systems, Level I
14 <input type="checkbox"/>	2 <input type="checkbox"/> Electrical Theory 3: Alternating Current - CML		2	<input type="checkbox"/> AC Theory, Level I
			2	<input type="checkbox"/> AC Theory, Level II
			2	<input type="checkbox"/> AC Theory, Level III
			2	<input type="checkbox"/> AC Theory, Level IV
15 <input type="checkbox"/>	3 <input type="checkbox"/> Applied Grounding and Bonding, Based on the 2023 NEC - CML		3	<input type="checkbox"/> Grounding and Bonding, Level I
			3	<input type="checkbox"/> Grounding and Bonding, Level II
16 <input type="checkbox"/>	2 <input type="checkbox"/> Fundamental Code Calculations, Based on the 2023 NEC - CML		2	<input type="checkbox"/> Electrical Code Calculations, Level I
	4 <input type="checkbox"/> Load and Service Calculations, Based on the 2023 - CML		2	<input type="checkbox"/> Electrical Code Calculations, Level II
17 <input type="checkbox"/>	3 <input type="checkbox"/> Motor Control for Electricians - CML		3	<input type="checkbox"/> Motor Control, Level I
			3	<input type="checkbox"/> Motor Control, Level II
			3	<input type="checkbox"/> Motor Control, Level III
18 <input type="checkbox"/>	3 <input type="checkbox"/> Motors for Electricians - CML		3	<input type="checkbox"/> Motor Control, Level I
			3	<input type="checkbox"/> Motor Control, Level II
	3 <input type="checkbox"/> Motor Code Calculations - CML		3	<input type="checkbox"/> Motor Control, Level III
19 <input type="checkbox"/>	3 <input type="checkbox"/> Rigging for the Electrical Industry - CML		3	<input type="checkbox"/> Rigging, Hoisting, and Signaling, Level I
20 <input type="checkbox"/>	3 <input type="checkbox"/> Torque for the Electrical Industry - CML		3	<input type="checkbox"/> Torque, Level I
21 <input type="checkbox"/>	2 <input type="checkbox"/> Transformer Principles and Applications 1 - CML		2	<input type="checkbox"/> Transformers, Level I
	2 <input type="checkbox"/> Transformer Principles and Applications 2 - CML		2	<input type="checkbox"/> Transformers, Level II
	2 <input type="checkbox"/> Transformer Code Calculations, Based on the 2023 NEC - CML		2	<input type="checkbox"/> Transformers, Level III
20 <input type="checkbox"/>	3 <input type="checkbox"/> Preparing for Leadership: Personal Qualities - 2nd Ed.		3	<input type="checkbox"/> No BL Version Created

The table below shows the etA Recommended Advanced Topics and the corresponding courses that must be completed in either Blended Learning (BL) or Computer Mediated Learning (CML) mode. The delivery method column indicates which mode is available for each topic. This is just a fraction of the advanced topic courseware that is available from the etA, but in support for programs building out their 720-Hour Inside Curriculum, here is a list of the etA's recommended Advanced training.

INSIDE RECOMMENDED ADVANCED TOPICS 108 HOURS

Computer Mediated Learning Courseware		OR	Previous Blended Learning Equivalent		
Topic	Typical Year	Course	Typical Year	Course	Credits
1 <input type="checkbox"/>	2	<input type="checkbox"/> Code, Standards, and Practices 6, Based on the 2023 NEC - CML	2	<input type="checkbox"/> Code, Standards, and Practices 6, Based on the 2023 NEC	1.5
2 <input type="checkbox"/>	4	<input type="checkbox"/> Fire Alarm Systems, Based on the 2022 NFPA 72 and the 2023 NEC - CML	4	<input type="checkbox"/> Fire Alarm Systems, Level I	2
			4	<input type="checkbox"/> Fire Alarm Systems, Level II	2
3 <input type="checkbox"/>	2	<input type="checkbox"/> Structure Cabling Systems and Power-Limited Technologies - CML	4	<input type="checkbox"/> Structured Cabling 2nd Ed.	4
4 <input type="checkbox"/>	4	<input type="checkbox"/> No CML Equivalent Yet	3	<input type="checkbox"/> Lightning Protection, Level I	1
5 <input type="checkbox"/>	4	<input type="checkbox"/> No CML Equivalent Yet	4	<input type="checkbox"/> Introduction to Programmable Logic Controllers - 2nd Ed.	4.5
6 <input type="checkbox"/>	4	<input type="checkbox"/> No CML Equivalent Yet	4	<input type="checkbox"/> Building Automation 1: Control Devices and Applications, Level I	1.5
7 <input type="checkbox"/>	4	<input type="checkbox"/> No CML Equivalent Yet	4	<input type="checkbox"/> Health Care Facility Electrical Systems, Level I, Based on the 2024 NFPA 99 and 2023 NEC	1
8 <input type="checkbox"/>	4	<input type="checkbox"/> No CML Equivalent Yet	4	<input type="checkbox"/> Photovoltaics, Level I	3
9 <input type="checkbox"/>	3	<input type="checkbox"/> No CML Equivalent Yet	3	<input type="checkbox"/> Intrusion Detection, Level I - 2nd Ed.	1.5
10 <input type="checkbox"/>	4	<input type="checkbox"/> Instrumentation Introduction - Module 1	4	<input type="checkbox"/> No BL Equivalent	2
11 <input type="checkbox"/>	4	<input type="checkbox"/> No CML Equivalent Yet	4	<input type="checkbox"/> Test Instruments, Level I	2
Total Recommended Advanced Credits					26

NOTES:
