The electrical training ALLIANCE Interim Credentials allows high school students to achieve the required Inside Apprenticeship 1st year academic courses for advanced placement in all NECA/IBEW Electrical Apprenticeship Training programs across the U.S. 

INTERIM CREDENTIALS

- ORIENTATION
- JOB INFORMATION
- ELECTRICAL CODE & SAFETY
- DC THEORY
- BLUEPRINTS

Bill Ball
Equivalent to 1st year apprenticeship academics

Web Based Mediated Training

Local Training Standards

INTERIM CREDENTIALS (JATC Frame of Reference)

High School
Military
Post-Secondary

INTERIM CREDENTIALS (High School Frame of Reference)

COMPUTER MEDIATED LEARNING

Blocks (Bite-size learning)

Modules of a Course
Absenteeism
Tools of the Trade
Workplace of an Electric Worker
Kitchen
Alignment & Measurements
Electronics
Twist on Wire Connections
How building services work
Working with Aluminum Conductors
Understanding electrical material
Working with prefixes in power of 10
Using the metric system
Alignment and Measurement
Just a few tables used throughout

**Four sources of heat which will have an effect on the insulation of a conductor:**

<table>
<thead>
<tr>
<th>AMBIENT</th>
<th>CURRENT FLOW</th>
<th>ADJACENT LOAD</th>
<th>CONTAINMENT</th>
</tr>
</thead>
</table>
| Ambient heat is the temperature of heat generated in the area outside conductor. It is the heat lost from the conductor. | Heat generated by current flow is further increased by the temperature of the surrounding material, such as gusset or bussing. | Heat generated by adjacent load is further increased by the temperature of the adjacent conductor. (The amount by which the adjacent conductor is heated affects the insulation of the conductor.) | The covering in which conductors are installed will have a significant effect on the temperature of the conductors. If the covering is not thick enough to dissipate the heat that the ambient air

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**Insulation Material**

<table>
<thead>
<tr>
<th>Type</th>
<th>Rating</th>
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<tbody>
<tr>
<td>T</td>
<td>00 degrees</td>
</tr>
<tr>
<td>THM</td>
<td>75 degrees</td>
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<tr>
<td>THMh</td>
<td>90 degrees</td>
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**NEMA Straight Baked Enamel**

<table>
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<tr>
<th>Type</th>
<th>Class</th>
<th>Voltage</th>
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</thead>
<tbody>
<tr>
<td>E</td>
<td>A</td>
<td>2000 V</td>
</tr>
<tr>
<td>E</td>
<td>B</td>
<td>2500 V</td>
</tr>
<tr>
<td>E</td>
<td>C</td>
<td>3000 V</td>
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</table>

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**NEMA Laminated Enamel**

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<th>Class</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>A</td>
<td>2000 V</td>
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<tr>
<td>G</td>
<td>B</td>
<td>2500 V</td>
</tr>
<tr>
<td>G</td>
<td>C</td>
<td>3000 V</td>
</tr>
</tbody>
</table>
The most basic circuit we can start to analyze is the series circuit, and it has all the components of a complete circuit, so we will start there. You must be able to understand a circuit and its components to be able to analyze it and study how it measure the effects of variables introduced to it. Let’s start with Circuit Diagrams.

A schematic diagram uses graphic symbols to represent the actual components. Select the example of a schematic diagram.

**Schematic Symbols**

- **Battery**: A battery is a source of DC power. The battery symbol may be used to represent many types of DC voltage sources, although two symbols are used to indicate charging. The symbol on the left side suggests the battery is in service, while the symbol on the right side suggests the battery is being charged.

- **Wire or conductor**: Wires or conductors are used to make electrical connections. The symbol represents a wire or conductor, which is used to carry electrical current.

- **Resistor**: A resistor is a device that opposes the flow of current in a circuit. All electrical components contain some resistance.
Schematic Symbols

- **N.O. Switch**: A switch is a mechanical component used in electrical circuits to control the flow of current through a circuit. When the switch is open, no current can flow through the switch.
- **N.C. Switch**: A switch is a mechanical component used in electrical circuits to control the flow of current through a circuit. When the switch is closed, current can flow through the switch.
- **Fuse**: A fuse is a circuit protection device that limits the current that flows through the circuit. If the current exceeds a certain threshold, the fuse will melt and open the circuit to prevent damage to other components.
- **Circuit Breaker**: A circuit breaker is an automatic protective device that opens the circuit when the current exceeds a certain threshold, thereby preventing damage to the circuit and its components.

Schematic Symbols

- **Voltmeter**: A voltmeter is a device used to measure the voltage across an electrical circuit. It is connected in parallel with the device whose voltage is to be measured.
- **Ammeter**: An ammeter is a device used to measure the current flowing through an electrical circuit. It is connected in series with the device whose current is to be measured.
- **Lamp**: A lamp is a device that converts electrical energy into light. In an electrical circuit, the lamp represents a load or a consumer of electrical energy.

Schematic Symbols

- **Potentiometer**: A potentiometer is a variable resistor that is used to adjust the output voltage in a circuit. The symbol shown here is sometimes used to represent a potentiometer.
- **AC Voltage Source**: The AC voltage source is a device that generates an alternating current (AC) voltage. The AC voltage source is used in circuits that require alternating current for operation.
The Series Circuit

The DC series circuit is a building block for many other concepts in the electrical sciences. There are three basic rules that every series circuit is subject to and four rules that series circuits share with all other types of circuits.

In a series circuit, there is only ONE PATH FOR CURRENT TO FLOW.
**Door Schedule**

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<th>DOOR</th>
<th>NO.</th>
<th>SCHEDULE</th>
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</table>

**Light Fixture Schedule**

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<thead>
<tr>
<th>TYPE</th>
<th>MANUFACTURER</th>
<th>MODEL NUMBER</th>
<th>NUM.</th>
<th>CAPSULE</th>
<th>WATTAGE</th>
<th>WIRING</th>
<th>REMARKS</th>
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<tbody>
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<td>6000</td>
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</table>
CONNECTED LOAD:

- **Lighting:** 12.2 kW
- **Miscellaneous:** 42.0 kW
- **Water Heating:** 7.5 kW
- **HVAC:** 27.8 kW

**Total:** 89.7 kW

-PANELBOARD-A SCHEDULE (Residential)-

-PANELBOARD-A SCHEDULE (Residential)-

-PANELBOARD-A SCHEDULE (Residential)-
Scoring and Achieving IC Certification

LMS and Module Content

[Diagram of LMS and Module Content]

[Diagram of Course Model]

...
Basic understanding of Energy Delivery

- Coal burning Power Plants
- Nuclear Power Plants
- Hydro Power Plants
- Solar Fields
- Wind Farms

The Power Grid

High Voltage  - to -  Medium Voltage

Substations
KNOWLEDGE CHECK

1. What kind of metering customer is picture-A?
2. Which customer is a secondary metering customer?
3. Which customer is a subtransmission customer?
info.InterimCredentials.Com

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