NOTE ON PERFORMANCE TESTING

Performance Profile Sheet(s) are included in a format that can be easily photocopied for each trainee. This examination is designed to measure competency in the tasks taught in each module.

Please note the number of tasks to be tested while teaching each module. Each trainee should be tested on all the tasks listed on the Performance Profile Sheet(s). Before performance testing, the instructor should brief the trainees on:

- Test objectives and criteria
- Safety precautions
- Procedures for each task to be tested

The instructor administering the performance testing should also do the following:

- Ensure that all of the needed equipment is available and operating properly.
- Set up the testing stations.
- Organize and administer the test in a way that allows for optimal performance.
- Complete the Performance Profile Sheet(s) for each trainee by assigning a pass/fail score for each listed task. Also, include the testing date, and start and end times for each task in the rating boxes.
- Monitor adherence to all safety regulations and precautions.
- Provide adequate supervision to prevent injuries.
- Take immediate and effective action to remedy any emergency.

Performance Testing

If Performance Testing is done as part of the NCCER Standardized Craft Training Program, the following conditions must be met:

1. The Craft Instructor must hold valid NCCER instructor certification.
2. The training must be delivered through an Accredited Training Sponsor recognized by NCCER.
3. The specific performance testing must be completed successfully.
4. The results of the testing must be recorded on the Registration of Training Modules Form. This form must be provided to the local Accredited Training Sponsor to be forwarded to the NCCER Registry.

Certified Plus Credential

Provided the sponsor is working through an NCCER-Accredited Assessment Center, candidates who successfully pass performance testing may be eligible for a Certified Plus credential. A number of NCCER's Performance Profiles cross over to NCCER's Assessment Performance Verifications and may be completed simultaneously. Go to www.nccer.org and select the Assessments tab to locate the Performance Verifications associated with this craft. Note that two other important conditions are required for the Certified Plus credential:

1. Candidates must first pass the associated written assessment.
2. An NCCER-Accredited Assessment Administrator must sign off on the Performance Verification before it is submitted to NCCER.
Craft: Instrumentation Level 3
Module: Module One, 12207-16
Module Title: Control Valves, Actuators, and Positioners

INSTRUMENTATION LEVEL 3 -- MODULE 12207-16 PERFORMANCE PROFILE

TRAINEE NAME: ____________________________________________

TRAINING PROGRAM SPONSOR: ________________________________

INSTRUCTOR: ______________________________________________

Rating Levels: (1) Passed: performed task (2) Failed: did not perform task
Also, list the date the testing for each task was completed.

Recognition: When testing for the NCCER Training Program, be sure to record Performance testing results on
the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Certified Plus Credential: Trainees who successfully complete these performance tasks may be eligible for a Certified Plus
Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>TASK</th>
<th>RATING</th>
<th>DATE</th>
<th>START TIME</th>
<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Install a positioner on a control valve.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Locate bridgeway markings on a globe valve and determine the stem and packing orientation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Identify different actuators and positioners from instructor-provided drawings or during a field survey.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Craft: Instrumentation Level 3  
Module: Module Two, 12205-16  
Module Title: Detectors, Secondary Elements, Transducers, and Transmitters

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>TASK</th>
<th>RATING</th>
<th>DATE</th>
<th>START TIME</th>
<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Identify various thermocouple types using a multifunction calibrator and a calibrated heat source.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Identify at least three instructor-chosen thermocouples by color code.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Connect a communication device to a smart transmitter and document the existing settings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rating Levels:  
(1) Passed: performed task  
(2) Failed: did not perform task

Also, list the date the testing for each task was completed.

Recognition: When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Certified Plus Credential: Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.
## Instrumentation Level 3 -- Module 12305-16 Performance Profile

**Craft:** Instrumentation Level 3  
**Module:** Module Three, 12305-16  
**Module Title:** Instrumentation Electrical Circuitry

### Objective

<table>
<thead>
<tr>
<th>Task</th>
<th>Rating</th>
<th>Date</th>
<th>Start Time</th>
<th>End Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Calculate the resistance range of three resistors using their color bands. Using a multimeter, measure the actual resistance of each resistor and determine if it is within the specified tolerance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Connect three resistors in series and calculate the total nominal resistance using the color bands and the appropriate formula. Using a multimeter, measure the actual total series resistance and compare it to the calculated value.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Connect three resistors in parallel and calculate the total nominal resistance using the color bands and the appropriate formula. Using a multimeter, measure the actual total parallel resistance and compare it to the calculated value.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recognition:**

When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.
Craft: Instrumentation Level 3  
Module: Module Four, 12208-16  
Module Title: Relays and Timers

TRAINEE NAME: ____________________________

TRAINING PROGRAM SPONSOR: ____________________________

INSTRUCTOR: ____________________________

Rating Levels:  
(1) Passed: performed task  
(2) Failed: did not perform task

Also, list the date the testing for each task was completed.

Recognition: When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Certified Plus Credential: Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.

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<th>DATE</th>
<th>START TIME</th>
<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select and connect various types of relays and timers to create a functional circuit as directed by the instructor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Craft: Instrumentation Level 3  
Module: Module Five, 12209-16  
Module Title: Switches and Photoelectric Devices  

<table>
<thead>
<tr>
<th>TASK</th>
<th>RATING</th>
<th>DATE</th>
<th>START TIME</th>
<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select and connect various switches into a functional circuit as directed by the instructor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select and connect various photoelectric devices into a functional circuit as directed by the instructor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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INSTRUMENTATION LEVEL 3 -- MODULE 12209-16 PERFORMANCE PROFILE
Craft: Instrumentation Level 3
Module: Module Six, 12307-16
Module Title: Terminating Conductors

INSTRUMENTATION LEVEL 3 -- MODULE 12307-16 PERFORMANCE PROFILE

TRAINEE NAME: ____________________________________________

TRAINING PROGRAM SPONSOR: ____________________________________________

INSTRUCTOR: ____________________________________________

Rating Levels: (1) Passed: performed task       (2) Failed: did not perform task

Also, list the date the testing for each task was completed.

Recognition: When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Certified Plus Credential: Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.

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<th>DATE</th>
<th>START TIME</th>
<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physically distinguish between various types of cable, including twisted-pair, non-twisted-pair, and coaxial.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Terminate conductors using crimp connectors.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Terminate shielded cable.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Install a coaxial cable connector.</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>Test a cable using telephones.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Inspect a cable for defects and classify any defects found.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Craft: Instrumentation Level 3
Module: Module Seven, 12306-16
Module Title: Grounding and Shielding of Instrumentation Wiring

TRAINEE NAME: 

TRAINING PROGRAM SPONSOR: 

INSTRUCTOR: 

Rating Levels:  
(1) Passed: performed task  
(2) Failed: did not perform task  
Also, list the date the testing for each task was completed.  

Recognition: When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor. 

Certified Plus Credential: Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information. 

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<th>START TIME</th>
<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify and explain the function of an equipment ground identified in an instructor-provided drawing.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Draw an example of a ground loop.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>Identify and explain the function of an equipment shield in an instructor-provided drawing.</td>
<td></td>
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</tr>
</tbody>
</table>
Craft: Instrumentation Level 3  
Module: Module Eight, 12204-16  
Module Title: Process Control Theory

---

TRAINEE NAME:  
TRAINING PROGRAM SPONSOR:  
INSTRUCTOR:  

Rating Levels:  
(1) Passed: performed task  
(2) Failed: did not perform task

Also, list the date the testing for each task was completed.

Recognition:  
When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Certified Plus Credential:  
Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.

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</thead>
<tbody>
<tr>
<td>1</td>
<td>Draw and accurately label a block diagram for a basic process control loop.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>From a piping and instrumentation drawing (P&amp;ID), identify the major components of each of these process control loop types:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• Feedforward</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• Feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• Cascade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• Ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Craft: Instrumentation Level 3  
Module: Module Nine, 12206-16  
Module Title: Controllers

| TRAINEE NAME: |  
| TRAINING PROGRAM SPONSOR: |

| INSTRUCTOR: |

Rating Levels:  
(1) Passed: performed task  
(2) Failed: did not perform task  
Also, list the date the testing for each task was completed.

Recognition:  
When testing for the NCCER Training Program, be sure to record Performance testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

Certified Plus Credential:  
Trainees who successfully complete these performance tasks may be eligible for a Certified Plus Credential. Refer to the Note on Performance Testing of this Performance Profile for eligibility requirements, or contact NCCER for more information.

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<th>END TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Given a schematic for a pneumatic controller, explain the purpose and operation of all major components.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Given a block diagram of an electronic controller, explain the function of each block.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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INSTRUMENTATION LEVEL 3 -- MODULE 12206-16 PERFORMANCE PROFILE