

# Hands-on Relay School Schedule

SUNDAY, MARCH 16, 2014

**3:00-6:00p.m. Facilitator Lab Station Set-up**

EE/ME Laboratory Rooms

**5:30 - 7:30 p.m. Registration & Reception**

University Inn, Moscow, ID

7:30 – 8:30 p.m. Facilitator Meeting

University Inn

**(Facilitator Lab Station Set-up 3-6pm)**

MONDAY, MARCH 17, 2014

**6:45 - Registration & Refreshments**

**7:30** Smith CUE, Main Atrium

**7:30 - Welcome & Announcements**

Smith CUE 203

**7:45 Track Overview Lectures**

<b>Distribution</b>	Smith CUE 207
<b>Generation</b>	Smith CUE 219
<b>Transmission</b>	Smith CUE 202
<b>Theory</b>	Smith CUE 202
<b>Doble</b>	Smith CUE 319
<b>Enoserv RTS</b>	Smith CUE 419
<b>Manta</b>	Smith CUE 209
<b>Megger AVTS</b>	Smith CUE 216
<b>Omicron</b>	Smith CUE 119

\*\*Electromechanical Track attend choice of Distribution, Generation or Transmission Overview

\*\*Basic Track attend the Introduction to System Protection Lecture Series Smith CUE 203

**7:45 Introduction to System Protection Lecture Series**

Smith CUE 203

**7:45** Introduction to Protection Basics and Terminology

**9:15** Introduction to CT Basics and Testing

**9:40 Break** - Smith CUE Atrium

**10:00** Introduction to CT Basics and Testing (cont.)

**10:45** Introduction to Substation Print Reading

**9:40 Break** - Smith CUE Atrium

**9:50 Concurrent Open Lectures**

• Digital Logic for Protection and Control	Smith CUE 202
• Phasor Diagrams	Smith CUE 209
• A Guide to Digital Fault Recording Event Analysis	Smith CUE 419
• Transformer Protection	Smith CUE 219
• Symmetrical Components 1	Smith CUE 319
• Substation Commissioning 1	Smith CUE 119

# Hands-on Relay School Schedule

## 11:00 Concurrent Open Lectures

- Fault Location Smith CUE 202
- Fault Analysis for Relay Technicians Smith CUE 209
- Impact of Distributed Generation on Distribution Systems Smith CUE 419
- Relay Communications Basics Smith CUE 219
- Symmetrical Components 2 Smith CUE 319
- Substation Commissioning 2 Smith CUE 119

## 12:00 Lunch on your own

Following lunch, all students will move to the EE/ME & Sloan Halls for the remainder of the day.

## 1:00 Hands-on Experience in the Lab

- **Basic - Introduction to System Protection Lecture Series** Sloan 175  
(cont.)

1:00 Basics of Relay Test Equipment

1:45 Introduction to Troubleshooting

(Basic Lab Facilitators report to EE/ME B54)

- **Distribution:** GE: F60 EE/ME 56
- **Generation:** Beckwith: 3425A EE/ME 240
- **Transmission:** ABB: KD10 EE/ME 34
- **Electromechanical:** ABB: IRD9 Sloan 150
- **Doble Advanced:** GE: BDD Sloan 9
- **Doble Beginning:** ABB: IRD9 Sloan 46
- **Enoserv Advanced:** GE: BDD Sloan 5
- **Enoserv Beginning:** ABB: IRD9 Sloan 7
- **Manta:** ABB: IRD9 Sloan 161
- **Megger:** ABB: IRD9 Sloan 163
- **Omicron:** ABB: IRD9 Sloan 38
- **Theory:** Transmission Line Protection Sloan 169

3:00 **Break** - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7

## 3:10 Continue Laboratory Testing

- **Basic:** ABB: CA EE/ME B54
- **Electromechanical:** GE: PVD Sloan 150

## 5:00 Adjourn

Dinner on your own

**TUESDAY, MARCH 18, 2014**

## 7:30 Concurrent Open Lectures

- Digital Logic for Protection and Control Smith CUE 202
- Phasor Diagrams Smith CUE 203
- A Guide to Digital Fault Recording Event Analysis Smith CUE 419
- Transformer Protection Smith CUE 219
- Symmetrical Components 1 Smith CUE 319
- Substation Commissioning 1 Smith CUE 119

# Hands-on Relay School Schedule

## 8:40 Concurrent Open Lectures

- Fault Location Smith CUE 202
- Fault Analysis for Relay Technicians Smith CUE 203
- Impact of Distributed Generation on Distribution Systems Smith CUE 419
- Relay Communications Basics Smith CUE 219
- Symmetrical Components 2 Smith CUE 319
- Substation Commissioning 2 Smith CUE 119

## 9:40 Break - Smith CUE Atrium

## 9:50 Concurrent Open Lectures

- Digital Logic for Protection and Control Smith CUE 202
- Phasor Diagrams Smith CUE 203
- A Guide to Digital Fault Recording Event Analysis Smith CUE 419
- Transformer Protection Smith CUE 219
- Symmetrical Components 1 Smith CUE 319
- Substation Commissioning 1 Smith CUE 119

## 11:00 Concurrent Open Lectures

- Fault Location Smith CUE 202
- Fault Analysis for Relay Technicians Smith CUE 203
- Impact of Distributed Generation on Distribution Systems Smith CUE 419
- Relay Communications Basics Smith CUE 219
- Symmetrical Components 2 Smith CUE 319
- Substation Commissioning 2 Smith CUE 119

## 12:00 Lunch on your own

Following lunch, all students will move to the EE/ME & Sloan Halls for the remainder of the day.

## 1:00 Hands-on Experience in the Lab

- **Basic:** ABB: CO EE/ME B54
- **Distribution:** Basler: BE1-11F EE/ME 56
- **Generation:** Beckwith: 3425A EE/ME 240
- **Transmission:** GE: L90 EE/ME 34
- **Electromechanical:** GE: CEH51 Sloan 150
- **Doble Advanced:** SEL: 311C Sloan 9
- **Doble Beginning:** GE: BDD Sloan 46
- **Enoserv Advanced:** SEL: 311C Sloan 5
- **Enoserv Beginning:** GE: BDD Sloan 7
- **Manta:** GE: BDD Sloan 161
- **Megger:** GE: BDD Sloan 163
- **Omicron:** GE: BDD Sloan 38
- **Theory:** Advanced Transformer Protection Sloan 175

## 3:00 Break - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7

## 3:10 Continue Laboratory Testing

- **Basic:** ABB: RC EE/ME B54
- **Generation:** SEL: 700G EE/ME 240

# Hands-on Relay School Schedule

**5:00 Adjourn**  
Dinner on your own

**6:30 - 9:00 Supplier's Showcase**  
University Inn, Moscow

**WEDNESDAY, MARCH 19, 2014**

**7:30 Hands-on Experience in the Lab**

- **Basic:** GE: JBCG EE/ME B54
- **Distribution:** Cooper: Form 6 EE/ME 56
- **Generation:** SEL: 700G EE/ME 240
- **Transmission:** Beckwith: 3311A EE/ME 34
- **Electromechanical:** GE: BDD Sloan 150
- **Doble Advanced:** SEL: 311C Sloan 9
- **Doble Beginning:** Basler: BE1-810/U Sloan 46
- **Enoserv Advanced:** SEL: 311C Sloan 5
- **Enoserv Beginning:** Basler: BE1-810/U Sloan 7
- **Manta:** SEL: 311C Sloan 161
- **Megger:** SEL: 311C Sloan 163
- **Omicron:** SEL: 311C Sloan 38
- **Theory:** Remedial Action and Transfer Trip Schemes Sloan 175

**10:00 Break** - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7

**10:10 Continue Laboratory Testing**

**12:00 Lunch on your own**

**1:00 Hands-on Experience in the Lab**

- **Basic:** Basler: BE1-27/59 EE/ME B54
- **Distribution:** ABB: REF615 EE/ME 56
- **Generation:** GE: G60 EE/ME 240
- **Transmission:** Schneider: P546 EE/ME 34
- **Electromechanical:** GE: JBCG Sloan 150
- **Doble Advanced:** SEL: 311C Sloan 9
- **Doble Beginning:** SEL: 311C Sloan 46
- **Enoserv Advanced:** SEL: 311C Sloan 5
- **Enoserv Beginning:** SEL: 311C Sloan 7
- **Manta:** SEL: 311C Sloan 161
- **Megger:** SEL: 311C Sloan 163
- **Omicron:** SEL: 311C Sloan 38
- **Theory:** Phasor Measurement Units Sloan 175

**3:00 Break** - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7

**3:10 Continue Laboratory Testing**

- **Basic:** Basler: BE1-810/U EE/ME B54



## Hands-on Relay School Schedule

**3:10 Continue Laboratory Testing**

**5:00 Adjourn**  
Dinner on your own

**FRIDAY, MARCH 21, 2014**

*All tracks will convene in  
Smith CUE 203 for this day*

**7:30 Closing Remarks**

**7:45 Feature Presentation**  
Thanksgiving 2012 at Thermalito Powerplant

**9:00 Break**

**9:15 Feature Presentation**  
Integration of Wind Resources into the BPA Grid

**10:30 ADJOURN**