

Hands-on Relay School Schedule

SUNDAY, MARCH 15, 2015

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

7:00 – 8:00 p.m. Facilitator Meeting

University Inn, Moscow, ID

MONDAY, MARCH 16, 2015

6:45 - Registration & Refreshments

7:30 Smith CUE, Main Atrium

7:30 - Welcome & Announcements

Smith CUE 203

7:40 - Being Safe and the Importance of Realizing What Safety is For

Smith CUE 203

8:15 Track Overview Lectures

Distribution Smith CUE 202

Generation Smith CUE 219

Transmission Smith CUE 207

Theory Smith CUE 202

Doble Smith CUE 319

Enoserv RTS Smith CUE 419

Manta Smith CUE 209

Megger AVTS Smith CUE 216

Noram SMC Smith CUE 114

Omicron 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

8:15 Introduction to System Protection Lecture Series

Smith CUE 203

8:15 Introduction to Protection Basics and Terminology

9:40 Break - Smith CUE Atrium

10:00 Introduction to CT Basics and Testing

11:00 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 219
- End-End Testing Smith CUE 419
- Relay Communications Basics Smith CUE 209
- Symmetrical Components 1 Smith CUE 319
- Bus Protection Smith CUE 119

Hands-on Relay School Schedule

11:00 Concurrent Open Lectures

- Transformer Auxiliary Protective Devices Smith CUE 202
- Fault Analysis for Relay Technicians Smith CUE 209
- Personal Protective Bonding and Grounding Smith CUE 419
- Math for Relay Technicians Smith CUE 219
- Symmetrical Components 2 Smith CUE 319
- CIP-NERC Critical Infrastructure Protection 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

- **Basic - Introduction to System Protection Lecture Series** Sloan 175

(cont.)

Basic Lab Facilitators report to EE/ME B54

Basic students report to Sloan 175 for:

1:00 Basics of Relay Test Equipment

1:45 Introduction to Troubleshooting

Hands-on Experience in the Lab

- **Distribution:** ABB: REF615 EE/ME 56
- **Generation:** SEL: 700G EE/ME 240
- **Transmission:** ABB: KD10 EE/ME 34
- **Electromechanical:** ABB: KLF Sloan 150
- **Doble Advanced:** ABB: HU Sloan 5
- **Doble Beginning:** GE: JBCG Sloan 7
- **Enoserv:** GE: JBCG Sloan 9
- **Manta:** GE: JBCG Sloan 161
- **Megger:** GE: JBCG Sloan 163
- **Noram SMC:** GE: JBCG Sloan 32
- **Omicron Advanced:** ABB: HU Sloan 38
- **Omicron Beginning:** GE: JBCG Sloan 46
- **Theory:** An Introduction to Protection Sloan 169

3:00 Break - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7 & 169

3:10 Continue Laboratory Testing

- **Basic:** GE: IAC53 EE/ME B54

5:00 Adjourn

Dinner on your own

Optional Social Get Together at Birch & Barley

Hands-on Relay School Schedule

TUESDAY, MARCH 17, 2015

7:30 Concurrent Open Lectures

- Digital Logic for Protection and Control Smith CUE 202
- Phasor Diagrams Smith CUE 219
- End-End Testing Smith CUE 419
- Relay Communications Basics Smith CUE 203
- Symmetrical Components 1 Smith CUE 319
- Bus Protection Smith CUE 119

8:40 Concurrent Open Lectures

- Transformer Auxiliary Protective Devices Smith CUE 202
- Fault Analysis for Relay Technicians Smith CUE 203
- Personal Protective Bonding and Grounding Smith CUE 419
- Math for Relay Technicians Smith CUE 219
- Symmetrical Components 2 Smith CUE 319
- CIP-NERC Critical Infrastructure Protection 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 219
- End-End Testing Smith CUE 419
- Relay Communications Basics Smith CUE 203
- Symmetrical Components 1 Smith CUE 319
- Bus Protection Smith CUE 119

11:00 Concurrent Open Lectures

- Transformer Auxiliary Protective Devices Smith CUE 202
- Fault Analysis for Relay Technicians Smith CUE 203
- Personal Protective Bonding and Grounding Smith CUE 419
- Math for Relay Technicians Smith CUE 219
- Symmetrical Components 2 Smith CUE 319
- CIP-NERC Critical Infrastructure Protection 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: RC EE/ME B54
- **Distribution:** GE: F60 EE/ME 56
- **Generation:** SEL: 700G EE/ME 240
- **Transmission:** RFL: GARD 8K EE/ME 34
- **Electromechanical:** GE: JBCG Sloan 150
- **Doble Advanced:** SEL: 311C Sloan 5
- **Doble Beginning:** ABB: HU Sloan 7
- **Enoserv:** ABB: HU Sloan 9
- **Manta:** ABB: HU Sloan 161
- **Megger:** ABB: HU Sloan 163
- **Noram SMC:** ABB: HU Sloan 32
- **Omicron Advanced:** SEL: 311C Sloan 38

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- **Omicron Beginning:** ABB: HU Sloan 46
 - **Theory:** Wind Energy Sloan 175
- 3:00 Break** - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7 & 169
- 3:10 Continue Laboratory Testing**
- **Basic:** ABB: CA EE/ME B54
 - **Generation:** Beckwith: 3425A EE/ME 240
- 5:00 Adjourn**
Dinner on your own
- 6:30 - 9:00 Supplier's Showcase**
University Inn, Moscow

WEDNESDAY, MARCH 18, 2015

- 7:30 Hands-on Experience in the Lab**
- **Basic:** ABB: IRD9 EE/ME B54
 - **Distribution:** Cooper: Form 6 EE/ME 56
 - **Generation:** Beckwith: 3425A EE/ME 240
 - **Transmission:** GE: L90 EE/ME 34
 - **Electromechanical:** GE: CFD Sloan 150
 - **Doble Advanced:** SEL: 311C Sloan 5
 - **Doble Beginning:** Basler: BE1-810/U Sloan 7
 - **Enoserv:** Basler: BE1-810/U Sloan 9
 - **Manta:** SEL: 311C Sloan 161
 - **Megger:** SEL: 311C Sloan 163
 - **Noram SMC:** SEL: 311C Sloan 32
 - **Omicron Advanced:** SEL: 311C Sloan 38
 - **Omicron Beginning:** Basler: BE1-810/U Sloan 46
 - **Theory:** Distribution Faults and Event Analysis Sloan 175
- 10:00 Break** - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7 & 169
- 10:10 Continue Laboratory Testing**
- **Electromechanical:** GE: INC77 Sloan 150
- 12:00 Lunch on your own**
- 1:00 Hands-on Experience in the Lab**
- **Basic:** Basler: BE1-27/59 & 46 EE/ME B54
 - **Distribution:** Beckwith: M-7651-A EE/ME 56
 - **Generation:** ABB: REG650 EE/ME 240
 - **Transmission:** GE: L90 EE/ME 34
 - **Electromechanical:** GE: GCY Sloan 150
 - **Doble Advanced:** SEL: 311C Sloan 5
 - **Doble Beginning:** SEL: 311C Sloan 7
 - **Enoserv:** SEL: 311C Sloan 9
 - **Manta:** SEL: 311C Sloan 161
 - **Megger:** SEL: 311C Sloan 163

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- **Noram SMC:** SEL: 311C Sloan 32
- **Omicron Advanced:** SEL: 311C Sloan 38
- **Omicron Beginning:** SEL: 311C Sloan 46
- **Theory:** Arc Flash Sloan 175

3:00 Break - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7 & 169

3:10 Continue Laboratory Testing

- **Basic:** Basler: BE1-81O/U EE/ME B54
- **Transmission:** SEL: 487E EE/ME 34

5:00 Adjourn

6:00 Social, No-host Bar

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6:30 - 9:00 Banquet and Entertainment

University Inn, Moscow, ID

THURSDAY, MARCH 19, 2015

7:30 Hands-on Experience in the Lab

- **Basic:** GE: BDD EE/ME B54
- **Distribution:** SEL: 751A EE/ME 56
- **Generation:** Basler: BE1-11G EE/ME 240
- **Transmission:** SEL: 487E EE/ME 34
- **Electromechanical:** ABB: HU Sloan 150
- **Doble Advanced:** SEL: 311C Sloan 5
- **Doble Beginning:** SEL: 311C Sloan 7
- **Enoserv:** SEL: 311C Sloan 9
- **Manta:** SEL: 311C Sloan 161
- **Megger:** SEL: 311C Sloan 163
- **Noram SMC:** SEL: 311C Sloan 32
- **Omicron Advanced:** SEL: 311C Sloan 38
- **Omicron Beginning:** SEL: 311C Sloan 46
- **Theory:** Distributed Generation Operation and Protection Sloan 175

10:00 Break - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7 & 169

10:10 Continue Laboratory Testing

- **Transmission:** SEL: 421 EE/ME 34

12:00 Lunch on your own

1:00 Hands-on Experience in the Lab

- **Basic:** SEL: 551 EE/ME B54
- **Distribution:** SEL: 787 EE/ME 56
- **Generation:** GE: CEX57/GSY51 EE/ME 240
- **Transmission:** SEL: 421 EE/ME 34
- **Electromechanical:** ABB: KD10 Sloan 150
- **Doble Advanced:** SEL: 311C Sloan 9

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- **Doble Beginning:** SEL: 311C Sloan 46
- **Enoserv:** SEL: 311C Sloan 5
- **Manta:** SEL: 311C Sloan 7
- **Megger:** SEL: 311C Sloan 161
- **Noram SMC:** SEL: 311C Sloan 163
- **Omicron Advanced:** SEL: 311C Sloan 38
- **Theory:** Distributed Generation Operation and Protection Sloan 175

3:00 Break - EE/ME Building outside Room 26 & B54, Automated Tracks near Sloan 7 & 169

3:10 Continue Laboratory Testing

5:00 Adjourn
Dinner on your own

FRIDAY, MARCH 20, 2015

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

7:30 Closing Remarks

7:45 Feature Presentation
The Salem Smart Power System

9:00 Break

9:15 Feature Presentation
MetCalf Substation

10:30 ADJOURN

**PLEASE TURN IN YOUR EVALUATIONS!
THANK YOU!**