

**NINETEENTH ANNUAL**

# **JOINT UTILITY TRAINING SCHOOL**

**JANUARY 18, 19 & 20, 1994**

**Ramkota Inn**

**Sioux Falls, SD**

**605-336-0650**



**Sponsored by  
JOINT UTILITY TRAINING COMMITTEE (JUTS)  
SOUTH DAKOTA ELECTRICAL COUNCIL**

# PROGRAM

## SESSIONS PROGRAM INFORMATION

Each session is designed as a 16-hour mini-course. Registration will be for one session only per individual. You will remain in that session for the entire length of the course. Certificates will be sent to your respective company if attendance has been continuous.

### REGISTRATION

\$85.00 per person

Pre-Paid Registration will include breakfast on Wednesday and Thursday morning at 6.30 a.m - 8 00 a.m in the Exhibit Hall and noon meal on Wednesday in the Exhibit Hall

Tuesday, January 18, 1994

10:00 a m to 12:00 noon

### LUNCHEON

Wednesday, January 19, 1994

12.00 noon to 1 00 p m

### Mini-Courses will be:

Tuesday

1:00 p.m to 5:00 p.m.

Wednesday

8 00 a m. to 5 00 p m

Thursday

8:00 a m to 12 00 noon

# **SESSION I-A and SESSION I-B**

SESSION 1-A — Harvest Room

SESSION 1-B — Viking Room

## **LEADERSHIP SEMINAR**

Tuesday, Jan. 18, 1 00 p m -5 00 p m

Wednesday, Jan 19, 8 00 a m -5 00 p m.

Thursday, Jan. 20, 8 00 a m.-12:00 noon

**Description:** This session will be taught by two instructors. Each will work with half the participants at one time, then switch to work with the other half. Enrollment is limited to 40 people, 20 in each group.

**TITLE:** Tools to Handle Those Tough People and Tough Situations

- \*Controlling difficult situations
- \*Dealing with tense work situations without losing credibility
- \*How non-verbal behavior and a person's life history effects leading others
- \*Improving employee performances and working as a team
- \*Employee discipline and improving performance
- \*Becoming more assertive and effective at work
- \*Fully understanding and managing stress

**Instructors:** Jim Kellar - Training Associates, Sioux Falls, SD  
Suzanne Knudson, Human Relations Training Consultant,  
Sioux Falls, SD

**Coordinators:** James Mergen and Don Seeklander

**COURSE LIMITED TO 40 STUDENTS**

# **SESSION II**

Exhibit Hall

## **OCR MAINTENANCE, OVERCURRENT PROTECTION AND LIGHTNING PROTECTION**

### **Part I**

Tuesday 1:00 p.m. - 5:00 p.m.

**TITLE:** Electric Reclosers

**Description:** A 4-hour course designed for linemen or individuals with recloser maintenance and application background.

The course will cover: General introduction, overall application, tear down and trouble shoot single phase and three phase vacuum electronic reclosers  
Testing of electronic reclosers both single phase and three phase

**Instructors:** Jim Rathiff - Lexington Switch & Controls, Lebanon, OH  
Roger Nagel - Lanick & Liljegen, Minneapolis, MN  
Ernie Leesch - Burmeister Electric, Minneapolis, MN

### **Part II**

Wednesday, 8:00 a.m. - 5:00 p.m.

**TITLE:** Ground Testing and OCR Maintenance

**Description:** A 1-hour course on ground testing and a 7-hour course with hands on testing, maintaining and operating reclosers

**Instructors:** Ronald E. Globke and Robert Schrag  
Turner-Hutchinson Electric Cooperative, Inc., Marion, SD

### **Part III**

Thursday, 8:00 a.m. - 12:00 noon

**TITLE:** Overcurrent Protection and Lightning Protection

**Description:** This session covers construction, maintenance and operation of overhead and underground protection systems.

**Instructor:** David H. DeVries  
DeWild, Grant, Reckert & Associates Co., Rock Rapids, IA

**Coordinators:** Bruce Brunick and Charles W. (Chuck) Birkholt

**COURSE LIMITED TO 25 STUDENTS**

# SESSION III

Washington Room

## TRANSFORMER CONNECTIONS

A 16-hour workshop designed for apprentice linemen or for experienced linemen and servicemen who are willing to go through a refresher course seeking ideas for communicating and explaining electrical terms and transformer connections to employees who they may supervise. The workshop experience will be valuable to senior linemen who did not have the opportunity to learn the trade at a lineman's school. A pocket calculator would be helpful in determining the anticipated voltage.

### Part I

Tuesday, 1 00 p m - 5 00 p.m

**Description:** This session begins with a 2-1/2 hour segment of slides, demonstration, and lecture designed to give line personnel a non-technical, fundamental review of single and three-phase electric power followed with DELTA connections simplified. The remaining portion of the session will involve hands-on experience with miniature equipment including class participation in determining transformer polarity and turns ratio.

### Part II

Wednesday, 8:00 a.m - 12 00 noon

**Description:** This session opens with a lecture and demonstration on WYE connections. One hour will then be devoted to hands-on experience with miniature transformers and poles. A lecture will be presented on sequence after which the class will return to construction of miniature transformer banks. Experienced linemen may devote hands-on training time to emergency exercises.

### Part III

Wednesday, 1.00 p m - 5 00 p.m

**Description:** VOLTAGE PHASORS (Voltage Vectors) will be the subject of Part 3. The class will do numerous exercises involving voltage phasors and will parallel miniature transformer banks to confirm the accuracy of predicted angular displacement and secondary voltages. It is important that linemen know how to parallel transformer banks so as to not interrupt continuity of electrical service when transferring load from the old to the new transformer bank.

## **SESSION III-TRANSFORMER CONNECTIONS (CONTINUED)**

### **Part IV**

Thursday, 8 00 a m -12 00 noon

**Description:** Slides/lecture on three-phase power. During hands-on experience, the linemen will be involved with trouble shooting and will have the opportunity to solve emergency transformer bank problems.

**Instructor:** Gordon Solee, Engineer Consultant, Fergus Falls, MN

**Supervisors:** Clark Hendrickson - NSP, Sioux Falls, SD  
Richard Davis - NWPS, Huron, SD  
Dennis Wagner - NWPS, Huron, SD  
George Colombe - East River Electric, Madison, SD  
Ken Paul - MDU, Bismarck, ND  
Ken Herren - NWPS, Sioux Falls, SD

**Coordinators:** Al Kubousek and Tom Honkomp

4 other credit hours will be given by the State Electrical Commission

**COURSE LIMITED TO 48 STUDENTS**

# **SESSION IV**

Exhibit Hall Pre-Function Area

## **Z.E.M.A.R. REGULATOR SCHOOL**

**Description:** Students will be rotated through work stations containing regulators and panels. Regulator types will include General Electric, Allis Chalmers, Siemens Allis, Siemens, and McGraw-Edison. Students get an excellent opportunity to trouble shoot old and new types of controls and learn good trouble shooting techniques which can apply to other types of equipment.

### **PART I**

Tuesday, 1 00 p m - 5 00 p m

**TITLE:** Theory and Operation

### **PART II**

Wednesday, 8 00 a m - 12 00 noon

**TITLE:** Application and Accessories

### **PART III**

Wednesday, 1 00 p m - 5 00 p m

**TITLE:** Electronics and Trouble Shooting Procedures

### **PART IV**

Thursday, 8 00 a m -12 00 noon

**TITLE:** Hands-on Trouble Shooting and Questions and Evaluation

**Instructor:** Joe Robb - Z E M A R Regulator School, McConnelsville, OH

**Coordinators:** Bob Crawford and Richard "Slim" Rutschke

4 other credit hours will be given by the State Electrical Commission

**COURSE LIMITED TO 24 STUDENTS**

# **SESSION V-A**

Lincoln Room

## **ELECTRIC METERING**

Tuesday, 1 00 p m - 5 00 p m  
Wednesday, 8 00 a m - 5 00 p m  
Thursday, 8 00 a m - 12 00 noon

**TITLE:** Basic Metering

**Description:** A 16-hour course designed for linemen or apprentice meterpersons with little or no metering experience

**Topics:**

- Basic Concept of Metering
- Single-phase Self-Contained Metering
- Current and Potential Transformers
- Single-phase Transformer Rated Metering
- Multipliers
- Poly-phase Loads
- Self-contained Poly-phase Meters
- Transformer-Rated Poly-phase Wiring Schemes
- Meter Testing Techniques
- Diversion Investigation Techniques

Each student is required to bring to the course a meter any type of meter will work, i e , single or polyphase (three phase), old or new

**Instructors:** Larry Chapman - Chapman Metering Co , Avoca, IA  
Chad Carpenter - Border States Electric, Plymouth, MN  
Tim Eskew - Schlumberger, Minneapolis/St Paul, MN

**Coordinator:** Dean Greer

4 other credit hours will be given by the State Electrical Commission



# **SESSION V- B**

Roosevelt Room

## **ELECTRIC METERING**

Tuesday, 1 00 p m - 5 00 p m

Wednesday, 8 00 a m - 5 00 p m

Thursday, 8 00 a m - 12 00 noon

**TITLE:** Advanced Metering

**Description:** A 16-hour course for individuals with previous metering background

### **Topics:**

- Introduction to Power Engineering
- Metering Configurations (Past vs Future)
- Extended Range Metering
- Trouble Shooting Installations
- Demand Metering
- Digital Electronics
- Electronic Demand
- Solid State vs Introduction Metering
- Dynamics of Solid State Metering
- Introduction to Harmonics
- Harmonics Detection
- Time Division Multiplication
- Harmonics in Metering
- Reactive Metering
- Automated Meter Reading Overview
- Reader/Programmer Software

**Instructors:** Joe Thomas - Landis & Gyr, LaFayette, IN  
Kai Bass - Landis & Gyr, LaFayette, IN  
Jeff Peckron - Landis & Gyr, Minneapolis, MN  
Larry Chapman - Chapman Metering, Avoca, IA  
Lee Tourtelotte - Leading Technology, Minneapolis, MN  
Steve Bode - Burmeister Electric, Minneapolis, MN  
Ernie Leesch - Burmeister Electric, Vermillion, SD

**Coordinators:** Larry Brink and Jim Moore

4 other credit hours will be given by the State Electrical Commission

# **SESSION VI**

Amphitheater II

## **ENGINEERING**

### **PART I**

Tuesday, 1 00 p m -5 00 p m

**TITLE:** Stray Voltage Basics

**Description:** Detection, correction and prevention of stray voltage

**Instructor:** Jerry Lush - Sioux Valley Electric, Colman, SD

### **PART II**

Wednesday, 8.00 a.m.-12:00 noon

**TITLE:** Transformer Performance and Application

**Description:** This portion of the session is designed to give a better understanding of transformer application and protection trends including overcurrent and overvoltage protection.

Wednesday, 1:00-5 00 p.m.

**Description** Transformer loading consideration and transformer economic evaluation techniques will be presented

**Instructors:** Jerry Joskins - Cooper Power Systems, Glen Ellyn, IL  
Tom Johnson - Cooper Power systems, Minneapolis, MN  
Chad Carpenter - Border States Electric, Plymouth, MN  
Don Knudson - Border States Electric, Sioux Falls, SD  
Lex Silbermagel - Border States Electric, Fargo, ND

### **PART III**

Thursday, 8:00 a.m -10:00 a.m.

**TITLE:** Electric Design Guidelines

**Description.** This session will cover guidelines used when designing residential distribution facilities. Specific areas covered will be transformer and secondary loading, voltage drop and cost considerations.

**Instructor** To Be Announced

## Session VI - Engineering (continued)

### PART IV

Thursday, 10 00 a m.-12:00 noon

**TITLE:** Electric/Magnetic Fields

**Description:** This session is an overview of electric and magnetic fields from a utility perspective. Items include relative strengths of fields near utility facilities, meters used for measuring fields, and communicating with the customer

**Instructor:** To Be Announced

**Coordinators:** Todd Chambers and Stuart Wevik

# **SESSION VII**

Amphitheater I

## **OPERATIONS AND SAFETY**

### **Part I**

Tuesday, 1 00 a m -5 00 p m

**TITLE:** Chain Saw Safety

**Description** Chain saw functions and maintenance, kick-back cause, effect and prevention and protective equipment

**Instructor:** Alex Bildeaux, Jr - Tilton Equipment Company,  
St Paul, MN

### **PART II**

Wednesday, 8 00 a m - 12 00 noon

**TITLE:** Lockout/Tagout Hazardous Energy Sources

**Instructor:** Jon Puetz - SDSU Extension Services, Brookings, SD

### **PART III**

Wednesday, 1 00 p m - 3 00 p m

**TITLE:** Climbing Safety. Fall Prevention. Climbing Tools Inspection and Maintenance

**Instructor:** Roderick Paul - Bashlin Industries Inc , Grove City, PA

### **Part IV**

Wednesday, 3 00 a m - 5 00 p m

**TITLE:** Cotton Clothing and Personal Protective Equipment

**Description:** Care and maintenance of protective equipment, rubber gloves, etc

**Instructor:** Gale Tollefson - Otter Tail Power Company, Wahpeton, ND

**PART V**  
**Thursday, 8:00 a.m.-10:00 p.m.**

**TITLE:** Chain and Hoist Rigging Safety. Inspections. Recordkeeping. Review of Federal Regulations Regarding Inspections and Recordkeeping.

**Instructor:** Bill Peterson, Dakota Riggers Inc , Sioux Falls, SD

**PART VI**  
**Thursday, 10 00 a m -11 45 a m**

**TITLE:** Work Area Protection

**Instructor:** Jim Lewis - SDREA, Pierre, SD

**Coordinators:** Jim Lewis and Don Hook

**COURSE LIMITED TO 40 STUDENTS**

4 other credit hours will be given by the State Electrical Commission

# **SESSION VIII**

Jefferson Room

## **CUSTOMER RELATIONS**

Tuesday, 1 00 p.m -5 00 p m.

Wednesday, 8:00 a m -5:00 p m.

Thursday, 8:00 a m -12:00 noon

This class consists of hands-on training on how to deal with other people. It is specifically designed to deal with utility customers but will also help the participant communicate with spouse, children, and people in general.

It is a hands-on practice-type training class put together by Kaset, Inc. It is applicable to all classifications of employees but most helpful to those dealing directly one-to-one with customers.

**Instructors:** Dean Swanson - Otter Tail Power Co , Fergus Falls, MN  
Kevin Kouba - Otter Tail Power Co., Bemidji, MN

**Coordinator:** Juell Chapman

**COURSE LIMITED TO 20 PEOPLE**

# **SESSION IX**

Crystal Room

## **NATIONAL ELECTRICAL SAFETY CODE**

Tuesday, 1:00 p.m. - 5:00 p.m. Parts 1 & 2

Wednesday, 8:00 a.m. - 5:00 p.m. Parts 3, 4, & 5

Thursday, 8:00 a.m. - 12:00 noon Parts 6 & 7

**Description:** The purpose of this class is to teach electric distribution personnel how to use the NESC book and some of the things to look for on their existing system. This class is distribution oriented. Lectures, practice exercises, videos and practical application slides are used to make this a multimedia course.

### **STUDENTS MUST BRING A CURRENT NESC BOOK WITH THEM.**

The class is broken into 7 parts

1. What is the NESC	Sections 10-17
2. Grounding Methods	Sections 90-99
3. Electric Supply Stations	Sections 100-193
4. Development of Overhead Lines	
5. Overhead Lines	Sections 200-279
6. Underground Lines	Sections 300-391
7. Work Rules	Sections 400-446

**Instructor:** Chuck Weeks - Montana-Dakota Utilities Company  
Dickinson, ND

**Coordinator:** Dennis Schnabel

4 other credit hours will be given by the State Electrical Commission.

**COURSE LIMITED TO 22 PEOPLE**





# Joint Utility Training Committee

## Chairman.

Ken Wetz - Butte Electric, Newell, SD

## Vice-Chairman.

Don Seeklander - City of Estelline, Estelline, SD

## Secretary.

Al Kubousek - Otter Tail Power Company, Milbank, SD

## Treasurer:

Randy Dickerson - South Dakota Rural Electric Association, Pierre, SD

## South Dakota Electrical Council.

Pete Swanson (liaison) - Watertown Municipal Utilities, Watertown, SD

## JUTS Members

### South Dakota Rural Electric Association.

Charles W. Birkholt - Cam Wal Electric, Selby, SD

Ken Wetz - Butte Electric, Newell, SD

Juell Chapman - Grand Electric, Bison, SD

Larry Brink - Beadle Electric, Huron, SD

Jim Moore - Northern Electric, Bath, SD

### Investor-Owned Electric Utilities.

Al Kubousek - Otter Tail Power Company, Milbank, SD

Robert Crawford - Northwestern Public Service, Huron, SD

Dennis Schnabel - Montana-Dakota Utilities Co, Mobridge, SD

Dean Greer - Northern States Power Company, Sioux Falls, SD

Stuart Wevik - Black Hills Power and Light, Rapid City, SD

### Municipal Electric Utilities:

Tom Honkomp - Brookings Municipal Utilities, Brookings, SD

Jim Mergen - Sioux Falls Light Department, Sioux Falls, SD

Bruce Brunick - City of Vermillion, Vermillion, SD

Don Seeklander - City of Estelline, Estelline, SD

Todd Chambers - City of Pierre, Pierre, SD

### Generation, Transmission, Political Subdistricts, Statewide Association.

Jim Lewis - South Dakota Rural Electric Association, Pierre, SD

Slim Rutschke - South Dakota Rural Electric Association, Pierre, SD

Randy Dickerson - South Dakota Rural Electric Association, Pierre, SD

Don Hook - East River Electric Power Cooperative, Madison, SD

Rodney Gunn - West River Electric, Rapid City, SD

**19th Annual  
Joint Utility Training School  
January 18, 19 & 20, 1994  
Ramkota Inn - Sioux Falls, SD**

**REGISTRATION FEE  
is \$85.00 per student - PREPAID**

- |      |   |              |
|------|---|--------------|
| I.   | LEADERSHIP SEMINAR-   | - 40 Maximum |
|      | I-A   |              |
|      | I-B   |              |
| II.  | OCR MAINTENANCE, OVERCURRENT<br>PROTECTION & LIGHTNING PROTECTION | -25 Maximum  |
| III. | TRANSFORMER CONNECTIONS   | - 48 Maximum |
| IV   | Z.E.M.A.R REGULATOR SCHOOL  | -24 Maximum  |
| V    | ELECTRIC METERING   |              |
|      | V-A   |              |
|      | V-B   |              |
| VI   | ENGINEERING   |              |
| VII. | OPERATIONS SAFETY   | - 40 Maximum |
| VIII | CUSTOMER RELATIONS  | - 20 Maximum |
| IX.  | NATIONAL ELECTRIC SAFETY CODE                                     | - 22 Maximum |

Some sessions have limited enrollment, so make your reservations **as soon as possible**.

Please submit this form with payment. Make checks payable to Joint Utility Training School. Refunds and changes in registration will be allowed to January 7th. Send check and registration form to: South Dakota Rural Electric Association, ATTN. Dawn Trapp, PO Box 1138, Pierre, SD 57501-1138