

### ERIE COUNTY WATER AUTHORITY INTEROFFICE MEMORANDUM

October 24, 2018

To: Terrence McCracken Secretary to the Authority

> Robert Lichtenthal Deputy Director

From: Jeffrey Schlierf Acting Manager of Data Processing

Subject: CISCO IP Routing Training – Rick Deren (Network Specialist)

I highly recommend Rick Deren attend this 5 day training class on implementing CISCO IP Routing held in Arlington Virginia 12/10/18 - 12/14/18. The estimated cost to send Rick to this training is \$5,510 (training and travel combined).

The information covered in this class directly relates to the CISCO equipment and protocols used in the ECWA business and SCADA networks. We will have over 270 pieces of CISCO equipment ranging from large 384 port back bone switches down to 8 port peripheral switches. This count also includes the CISCO switches used in the Wide Area Network (WAN) project, WiFi access points strategically placed throughout Water Authority facilities and the 51 CISCO switches slated to replace the Phoenix Contact switches currently used in the Production SCADA network. Currently the only person that can configure these switches is an outside consultant. It is in the best interest of the Authority to have someone in house with the same capability.

# TRAVEL REQUEST

Job Title       NRTWORK SPECIALIST         Department       TAFORMATION TRCHMOLOGY         Destination(s)       AKLINGTON, UIRGEWA         Reason for Travel/(check one):       Training A Authority Business         Is this training needed to meet professional licensing requirements?       NO         Description of training or business, and reasons and benefits of attendance       Africka The Crisco Paule 5 DMT TRAINER Coulds IN Malandrow, the low of the counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow, the offer counses for SMM and the Coulds IN Malandrow IN Counter for the Counses for SMM and the Coulds IN Malandrow INCLUSTER Counses for SMM and the Coulds IN Malandrow INCLUSTER Counses for SMM and the Coulds IN Malandrow INCLUSTER Counses for SMM and the Coulds INCLUSTER Counses for SMM and the Counses for SMM and the Coulds INCLUSTER Counses for SMM and the Counses f	Today's Date 10/17/18	Name RICHARD DEREN
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$\frac{A_{IR}FRZE^{-5400}}{PREWHET: 330 FPM FINGULAR} = \frac{5 Nights e^{5105}}{82.5.00}  Bolars = \frac{5}{350 \cdot 00}  Hotel Accommodations = \frac{5}{82.5.00}  Meals = \frac{240.00}{240.00}$ $TOTAL ESTIMATED COST = \frac{1}{915.00}  W/ REGISTRATION FEE = \frac{5}{5510.00}  Balance in the travel budget prior to this trip = \frac{9}{9.000.00}  G/L Number = \frac{401000}{401000}$ $Unit = \frac{852.5}{92.50}  Primary = \frac{9312.12}{12}$ $Comments (i.e. spouse traveling, preferences): \frac{16121-2712}{16000000}  Hotel - 2712  (Boould by 1470)$ $A_{12}EFRZ  Aud  Stop  Indovich$ $A_{12}EFRZE - SUUBAN,  REPARAL,  REWTAL CARFOR TRANSPORTATION, \\ Time  news to bo d d coussed \\ 349  Hight + schedule$ $Approvals:$ $Supervise A = A A A A A A A A A A A A A A A A A $		Total number of <u>business</u> days:5
Balance in the travel budget prior to this trip \$ <u>\$,000,00</u> G/L Number <u>401000</u> Unit # <u>8525</u> Primary # <u>9312.12</u> <b>Comments</b> (i.e. spouse traveling, preferences): <u>Hotel - ??? (Booked by 190)</u> <u>PREFER NON Stop THROUGH</u> <u>Aiefare - SUNDAY</u> , <u>REACTON NATIONAL</u> , <u>REWITAL CAR FOR TRANSPORTATION</u> , <u>Time needs to be discussed</u> <u>Balance in the traveloge</u> <u>Approvals:</u> <u>Supervisor</u> A 10 P AT 1	oe obtained from Trish Fabozzi X8456. 5 مانی عادی کاری کاری کاری کاری کاری کاری کاری کار	<b>Estimated Cost</b> Transportation costs can $A_{IR} \in A_{C} = 5400.00$ $A_{IR} \in A_{C} = 5400.00$ $A_{EN} = 1350 + PAA + 146.100$ Transportation $\frac{5}{5000}$ Hotel Acc
Unit # 8525 Primary # 9312-12 Comments (i.e. spouse traveling, preferences): Hotel - ??? (Bould by ATD) PREFER WAN Stop THROWCH AIEFARE - SUNDAY, REAGAN NATIONAL, REWITH CARFOR TRANSPORTATION, Time news to be discussed Hy Plight schedule Approvals: Supervisor A A PAT 1	00 W/ REGISTRATION FEE \$ 5,510,00	TOTAL ESTIMATED COST \$ 1, 915,
ALEFARE - SUNDAY, REAGAN NATIONAL, RENITAL CAR FOR TRANSPORTATION, Time neuls to be discussed By Plight schedule Approvals: SUPERVISOR AND DATE	$5 \frac{9,000,00}{0}$ G/L Number <u>401000</u> Unit # <u>8525</u> Primary # <u>931212</u>	Balance in the travel budget prior to this trip
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Depury Date 10/23/18 Exec. Dire. Secretary Date Date	Date 15/23/18	Exec. WINN. Secretary
Date of ResolutionItem No	Item No	Date of Resolution

## TRAINING REQUEST

Name RICHARD DEREN Today's Date 10/17/18
Job Title NETWORK SPECIALIST
Department JINFORMATION TECHNOLOGY
Dates of Training
From: Day (MTWTFSS), Date <u>12/10/18</u> To: Day (MTWTESS), Date <u>12/14/18</u>
Total number of business days:5
Location of Training ARLINGTON, UIRCINA
Training requests which require overnight accommodations/transportation costs must be accompanied by a Travel Request form.
Training Information
Title of Course(s) CFSCO ROUTE - IMPLEMENTING CISCO FP ROUTING NETWORKS.
URRSION 2.0 THE CISCOCROUTE) TRAINING COURSE TUCLUDES 5 DAYS OF LECTURES & MANDS ON LADS. Description ROUTE 16 TAUCHT BY A NETWORKING PROFESSIONAL. ROUTE IS A CONTINUETION OF THE SWICH COURSE THAT I FOOK LADST YEAR. THE KNOWLEDGE THAT I WILL LEARN AT ROUTE WILL HELP ME EMPLOYED ANY SKILLS AS A METWORK SAELINGS. POUTE WILL FOLDS ON PLANING, IMPLEMENTING & MENIFOLING THE ECWA ROUTED NETWORK, ROUTER SECURITY WILL BE DISCOSSED FN PEPTH. IMPOSTRY THENES (HMANAS & SUFTWARE WILL BE ADDRESSED. THE ECWA RELIES HEAVILY ON CESCO CONFIRMENT FOR SHE ECWA NCHMONE.
Is this course needed to meet continuing education or contact hour requirements? $N/A$ How many credit hours will you receive? $N/A$ How many credits (per year) required for your license? $N/A$ How many credits do you have year-to-date? $N/A$
Are there 2 or more people attending this seminar? $ND$ Are there concurrent sessions? $N/A$ Why is there a need for 2 or more people to attend this seminar? $N/A$
Estimated Cost
Registration Fee \$ 3,595.00 Mileage & Tolls \$
TOTAL ESTIMATED COST \$ 3,595.00
Balance in the training budget prior to this trip \$ 12,410 G/L Number 8525 40 1000 931287
Approvals:
Department Head Depury Schling Roz Date 10/23/18
Executive Director Cold Luther Date 10/23/18
Secretary Date

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# ROUTE - IMPLEMENTING CISCO IP ROUTING V2.0

Course Code: 5590

CLASSROOM LIVE

\$3,595 USD

5 days

### **Classroom Live Outline**

1. Basic Network and Routing Concepts

- Differentiating Routing Protocols
- Understanding Network Technologies
- Connecting Remote Locations with the Headquarters
- Implementing RIPng

#### 2. EIGRP Implementation

- Establishing EIGRP Neighbor Relationships
- Building the EIGRP Topology Table
- Optimizing EIGRP Behavior
- Configuring EIGRP for IPv6
- Discovering Named EIGRP Configuration
- 3. OSPF Implementation
  - Establishing OSPF Neighbor Relationship
  - Building the Link State Database
  - Optimizing OSPF Behavior
  - Configuring OSPFv3
- 4. Configuration of Redistribution
  - Implementing Basic Routing Protocol Redistribution
  - Manipulating Redistribution Using Route Filtering
- 5. Path Control Implementation
  - Using Cisco Express Forwarding Switching
  - Implementing Path Control
- 6. Enterprise Internet Connectivity
  - Planning Enterprise Internet Connectivity
  - Establishing Single-Homed IPv4 Internet Connectivity

- Establishing Single-Homed IPv6 Internet Connectivity
- Improving Resilience of Internet Connectivity
- Considering Advantages of Using BGP
- Implementing Basic BGP Operations
- Using BGP Attributes and Path Selection Process
- Controlling BGP Routing Updates
- Implementing BGP for IPv6 Internet Connectivity
- 7. Routers and Routing Protocol Hardening
  - Securing Cisco Routers
  - Describing Routing Protocol Authentication Options
  - Configuring EIGRP Authentication
  - Configuring OSPF Authentication
  - Configuring BGP Authentication

### **Classroom Live Labs**

Lab 1: Configuring IPv6 and RIPng

- Lab 2: Configuring EIGRP for IPv4
- Lab 3: Investigating EIGRP for IPv4 Behavior
- Lab 4: Configuring EIGRP for IPv6
- Lab 5: Configuring Named EIGRP for IPv4 and IPv6
- Lab 6: Configuring OSPF for IPv4
- Lab 7: Investigating OSPF for IPv4 Behavior
- Lab 8: Optimizing OSPF for IPv4
- Lab 9: Configure OSPFv3
- Lab 10: Configuring Route Redistribution and Filtering
- Lab 11: Configuring Path Control
- Lab 12: Configuring Basic Internet Connectivity
- Lab 13: Configuring BGP for IPv4
- Lab 14: Configuring BGP for IPv6
- Lab 15: Configuring EIGRP Authentication
- Lab 16: Configuring OSPF and BGP Authentication

Students will get an additional 10 e-lab credits to use in the 30 days following class.



**Training Quote** 

Quote date: October 17, 2018

Student contact information:

Richard Deren Erie County Water Auth 295 Main St Rm 350 Buffalo, NY 14203-2415 (716) 685-8556 Quote #: 00127458

Global Knowledge contact information:

Andrew Roberts Account Manager 919-461-8640 andrew.roberts@globalknowledge.com

Course	Course Name	Start Date	End Date	Location	Price	Qty	Total
5590C	ROUTE - Implementing Cisco IP Routing v2.0	12/10/ 2018	12/14/ 2018	Arlington VA USA	\$3,595.00	1	\$3,595.00

Subtotal:	\$3,595.00
Estimated Tax:	\$0.00
Total:	\$3,595.00

**Payment Options** 

Remit by mail: Global Knowledge Training LLC Attn: Andrew Roberts 29214 Network Place Chicago, IL 60673-1292 Fax copy of check or PO: Andrew Roberts 919-468-4848

Call with a credit card: Andrew Roberts 919-461-8640

Policy and Purchase Information

Total does not include applicable taxes. Non-promotional pricing is valid 30 days from October 17, 2018. Promotional pricing may end at any time. GSA contract number: GS-35F-501GA.

Enrollment and purchase polices are available at www.globalknowledge.com/termsandconditions.

Nov 5 - 9, 2018 | 8:30 AM - 5:00 PM | MORRISTOWN, NJ Dec 3 - 7, 2018 | 8:30 AM - 5:00 PM | LOS ANGELES, CA Dec 10 - 14, 2018 | 8:30 AM - 5:00 PM | WASHINGTON, DC (ARLINGTON, UN) Dec 17 - 21, 2018 | 8:30 AM - 5:00 PM | DALLAS, TX Jan 7 - 11, 2019 | 8:30 AM - 5:00 PM | WASHINGTON, DC Jan 14 - 18, 2019 | 8:30 AM - 5:00 PM | NEW YORK CITY, NY Jan 21 - 25, 2019 | 8:30 AM - 5:00 PM | DALLAS, TX Jan 21 - 25, 2019 | 8:30 AM - 5:00 PM | SAN JOSE, CA Jan 28 - Feb 1, 2019 | 8:30 AM - 5:00 PM | ATLANTA, GA Feb 4 - 8, 2019 | 8:30 AM - 5:00 PM | CHICAGO, IL Feb 11 - 15, 2019 | 8:30 AM - 5:00 PM | RESEARCH TRIANGLE PARK, NC Mar 4 - 8, 2019 | 8:30 AM - 5:00 PM | DALLAS, TX Mar 11 - 15, 2019 | 8:30 AM - 5:00 PM | WASHINGTON, DC Mar 18 - 22, 2019 | 8:30 AM - 5:00 PM | HOUSTON, TX Mar 25 - 29, 2019 | 8:30 AM - 5:00 PM | MORRISTOWN, NJ Mar 25 - 29, 2019 | 8:30 AM - 5:00 PM | SAN JOSE, CA