

Reading Group Schedule – Fall ‘12

Date	Topic	Responsibility	Description
31 Aug 12	Introductions – Getting to know each other	Karl Reinhard Ahmed Fawaz	Building relationships among the reading group members
7 Sep 12	Power Laboratory	Karl Reinhard	Hands on lab experience introducing non-Power Engineer students to making voltage, current, and power measurements – EL 50 (power lab)
14 Sep 12	Power Flow Basics	Karl Reinhard	Introduction to the power flow equations
21 Sep 12	PowerWorld: Hands On	Karl Reinhard	Introduction to Power World as a means to solving the power flow equations. Conducted in the computer lab using Power World

28 Sep 12	Power Sys Networks I: Application and Transport Layers	Ahmed Fawaz	<ul style="list-style-type: none"> - Application layer (HTTP, SMTP, FTP, video streaming) <ul style="list-style-type: none"> ○ Study structure using “wireshark” ○ Introduce port number - Transport (TCP, UDP,...) <ul style="list-style-type: none"> ○ Study reliability (netem)
5 Oct 12	Power Sys Networks II: Network Layer	Ahmed Fawaz	<ul style="list-style-type: none"> - Network layer: <ul style="list-style-type: none"> ○ Routing (intra and inter-as) using “traceroute,” Introduce IP addresses (DHCP,...) ○ Man-in-the-middle, IP spoofing ○ ICMP (ping messages) ○ Routers
12 Oct 12	Power Sys Networks III: MAC/Physical Layers & Wireless	Ahmed Fawaz	<ul style="list-style-type: none"> - MAC layer: <ul style="list-style-type: none"> ○ MAC addresses (check ARP caches) ○ Switches ○ ARP cache poisoning - Physical layer:
19 Oct 12	Power Sys Networks IV: Cyber Security	Ahmed Fawaz	Introduce IDS and Firewalls

26 Oct 12	TCIPG Industry Day Prep	TBD	
2 Nov 12	Phasor Measurement Unit (PMU) Demonstration	Karl Reinhard	Description and demonstration of a Phasor Measurement Unit implemented using National Instruments Hardware and LabVIEW
9 Nov 12	NIST Smart Grid Framework I	Karl Reinhard Ahmed Fawaz	Read and discuss NISTR 7628 Vol 1. Executive Summary
16 Nov 12	NIST Smart Grid Framework II	Karl Reinhard Ahmed Fawaz	Group brief backs on NISTR Vols 2 and 3. Sub-groups will be assigned to read and summarize key points.
30 Nov 12	Adv Meter Infrastructure I – Architecture	Ahmed Fawaz	Introduce AMI architecture
7 Dec 12	Advanced Meter Infrastructure II Traffic Analysis		Hands on analysis of communications traffic in the AMI network using TCIPG advanced meter Test Bed

Possible Meeting Topics to Carry Over to Spring 2013

TBD	Topology Perturbation for Detecting Malicious Data Injection	Ahmed Fawaz Kate Morrow	TCIPG Test Bed Demonstration using the subject demonstration to illustrate TCIPG test bed capabilities
TBD	IEC 61850 – Electrical Substation Standards I	Karl Reinhard TBD	SISCO Tutorial on IEC 61850. Possible guest speaker Ralph Mackwiecz, VP SISCO. A vehicle for discussing the 7 layer OSI model – and security implications
TBD	IEC 61850 – Electrical Substation Standards II	Karl Reinhard TBD	Discussion IEC 61850 – Electrical Substation Standards (cont)