

# ELECTROCHEMICAL ENGINEERING WORKSHOP SCHEDULE

**MONDAY**

**Monday, May 12, 2008**

*All lectures are in Nord Hall , Room 400*

- 8:15 – 8:30 Registration and distribution of materials
- 8:30 – 8:45 **Introduction to the Yeager Center for Electrochemical Sciences**  
Prof. Daniel Scherson, Director, YCES
- 8:45 – 9:00 **Workshop Overview and Objectives**  
Professor Uziel Landau, Principal Workshop Instructor
- 9:00 – 10:15 Uziel Landau, Professor, Chemical Eng. Dept., CWRU  
**Significance and Overview of Electrochemical Processes**
- 10:15 – 10:30 Break**
- 10:30 – 12:00 **Fundamental Relationships, Conductivity and Migration**  
Uziel Landau, Principal Instructor
- 12:00 – 1:00 Lunch (Balcony outside of Nord Hall 400)
- Resume in Nord Hall, Room 400*
- 1:00 – 3:00 **Transport Processes in Electrochemical Cells**  
Uziel Landau, Principal Instructor
- 3:00 – 3:15 Break**
- 3:15 – 5:30 **Thermodynamics of Electrochemical Systems**  
Uziel Landau, Principal Instructor
- 5:30 P.M. End of Session

C

A

S

E

**Tuesday, May 13, 2008**

*Nord Hall, Room 400*

8:30 – 10:00 **Thermodynamics of Electrochemical Systems (con't)**  
Uziel Landau, Principal Instructor

10:00 – 10:30 **Irreversible Electrode Processes – Overpotentials and Polarization**  
Uziel Landau, Principal Instructor

**10:30 – 10:45 Break**



10:45 – 12:00 **Irreversible Electrode Processes – Electrode Kinetics, Transport and Ohmic Limitations**  
Uziel Landau, (cont'd)

12:00 – 1:00 Lunch (Balcony outside of Nord Hall 400)



*Resume in Nord Hall, Room 400*

1:00 – 3:00 **The Current Distribution – Significance and Determination**  
Uziel Landau, Principal Instructor



**3:00 – 3:15 Break**

3:15 – 5:30 **Current Distribution: Primary and Secondary**  
Uziel Landau, Principal Instructor



5:30 P.M. End of Session

5:40 P.M. Transportation from Nord Hall to a Downtown/Flats Restaurant

6:00 – 9:00 Dinner, Warehouse District/Flats, Cleveland

9:00 P.M. Transportation from Restaurant to Hotel

Wednesday, May 14, 2008

*Nord Hall, Room 400*

8:30 – 10:15 **Mass Transport in Electrochemical Cells**  
Uziel Landau, Principal Instructor

**10:15- 10:30 Break**

10:30 - 12:00 Special Topic “**Corrosion and Cathodic Protection**”  
Professor Joe Payer, Materials Sciences Dept. CWRU

12:00 – 1:00 Lunch (Balcony outside of Nord Hall 400)

*Resume in Nord Hall, Room 400*

1:00 – 2:30 Special Topics – **Fuel Cells and fuel Cell Research**  
Robert Savinell, Professor, School of Engineering

**2:30 – 2:45 Break**

2:45 – 3:30 **Current and Potential Distributions Under Mixed Control**  
Uziel Landau, Principal Instructor

3:30 – 4:45 **Scaling Analysis and Design Considerations**  
Uziel Landau, Principal Instructor

4:45 – 5:30 **Resistive Electrodes – The Terminal Effect**  
Uziel Landau, Principal Instructor

5:30 P.M. End of session

7:00 – 9:00 **“Bring Your Own Problem”** informal session in *Windham Hotel*

C

A

S

E

**Thursday, May 15, 2008**

*Nord Hall, Room 400*

8:30 – 10:15 **Porous and 3-D Electrodes**  
Uziel Landau, Principal Instructor



**10:15 – 10:30 Break**

10:30 – 12:00 **Spectroscopic in-Situ Measurements in Electrochemical Cells**  
Professor Daniel Scherson, Director YCES

12:00 – 1:00 Lunch (Balcony outside of Nord Hall 400)

Resume in *Nord Hall, Room 400*



1:00 – 2:30 **Transients, Pulses and Periodic Current and Potential Applications**  
Uziel Landau, Principal Instructor



2:30 – 3:15 **Battery Design & Considerations**  
TBD

**3:15 – 3:30 Break**

3:30 – 4:15 **Battery Design & Considerations (Cont.)**  
TBD



4:15 – 5:30 **Electrode and Cell Configurations**  
Uziel Landau

5:30 P.M. End of session

**Friday, May 16, 2008**

*Nord Hall, Room 400*

8:30 – 9:45 **Electrodes and Cell Configurations, Bi-Polar Electrodes**  
Uziel Landau, Principal Instructor

C

9:45 – 10:15 **Deposit Texture and Morphology**  
Uziel Landau, Principal Instructor

**10:15 – 10:30 Break**

A

10:30 – 12:00 **Computer Simulations**

12:00 – 1:00 Lunch (Balcony outside of Nord Hall 400)

*Resume in Nord Hall, Room 400*

S

1:00 -2:15 **Electroplating and Metallization**  
Uziel Landau, Principal Instructor

E

2:15 – 2:45 **Workshop Concluding Remarks and Review**

2:45 - 3:00 Workshop certificates awarded

3:00 P.M. Workshop adjourns

---

## NOTES FOR FRIDAY:

- It would be a good idea to check-out of the hotel on Friday morning and bring your bags with you to campus. That way you can leave for the airport directly from CWRU. Your bags can be stored for the day in the Yeager Center offices which will be locked and watched all day.
- Because the workshop ends at 3:00 p.m. on Friday and because everyone has different flight schedules there is no formal transportation scheduled for Friday afternoon. Otherwise, ACE Taxi can transport up to four people in their taxis from CWRU to the airport. The phone number for ACE Taxi is 216 361-4700.