Product Liability Conference at NCE

IEEE's Reliability Group has a charter co-sponsor role in the forthcoming 3rd annual Product Liability Prevention Conference (PLP-72), and so any member of organization can attend at a reduced rate.

The conference will be held August 23-25, 1972, under auspices of Newark College of Engineering on the NCE campus in Newark, N. J. Its theme this year is "Let the Vendor Prepare!"

PLP-72 will hear 36 invited speakers, including Bruce B. Wilson, chief of consumer affairs in the U. S. Department of Justice's Anti-trust Division; Craig Spangenberg, past president of the International Society of Barristers; Prof. William Schwartz, general director of the American Trial Lawyers Association, and Michel A. Coccia, chairman of the Products Liability Committee of the Defense Research Institute.

Engineers, attorneys and insurers will present papers on technical and management aspects of product liability prevention, and there will be an expanded series of workshops covering such prime subjects as organization for product-liability prevention, design review, handling customer complaints, warnings and labels, and disclaimers and contracts.

Inquiries and registration should be addressed to Prof. Richard M. Jacobs, General Chairman, PLP-72, Newark College of Engineering, 323 High Street, Newark, N. J. 07102.

IEEE NORTH JERSEY SECTION LECTURE SERIES *FALL 1972*

ELECTRIC POWER DISTRIBUTION FOR INDUSTRIAL PLANTS AND COMMERCIAL BUILDINGS

This 13 session course is an updated version of the very successful course given in 1967. The course is presented for the benefit of electrical, consulting and project engineers, contractors, architects and others concerned with power distribution systems. The course will provide a sound working knowledge of the engineering principles necessary to properly select and layout an economical, adequate, safe and reliable power system.

Starts September 26, 1972 — *Automatic Switch Co.*

APPLIED SOLID STATE PROTECTIVE RELAYING

This 8 session course will provide a good working understanding of protective relay application techniques. Strong emphasis will be given to solid state relays, where they have been developed. The course will also include an introduction to solid state devices and basic relay circuits.

Starts September 28, 1972 — *Automatic Switch Co.*

PROFIT PLANNING FOR ENGINEERS IN MANAGEMENT

The North Jersey Section Education Committee is again presenting a seminar type program relating marketing, finance and general business economics to the decision-making procedure in technical enterprises. The course is directed to higher echelon managers who have advanced through engineering and technical lines, but whose scope now encompasses profit planning for comprehensive operations.

Starts October 17, 1972 — *Automatic Switch Co.*

The IEEE
Newsletter

The IEEE Newsletter is published monthly except June and July by the North Jersey Section of the Institute of Electrical & Electronics Engineers, Inc. Office of Publication: 399 Howard Boulevard, Mount Arlington, N. J. 07856.

Subscription: $0.75 per year through dues for members; $1.50 per year for non-members.

REPORT ALL ADDRESS CHANGES TO: Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, N. Y. 10017.

Volume 19 Number
AUGUST 1972

ELECTRIC POWER DISTRIBUTION FOR INDUSTRIAL PLANTS AND COMMERCIAL BUILDINGS

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The text *Industrial Power Systems Handbook* by McGraw Hill plus supplementary updating data is included in the tuition. The instructors will be from among the top experts in the field on Industrial and Commercial Power Distribution.

September 26 – Introduction. Preview of material to be covered – Documentary films – Load surveys – Need for plot plans – One line diagrams– Things to check when designing a power distribution system.
Instructor: F. A. Leinberger, Appl. Engr., General Electric Co., Phila., Pa.

October 3 – Basic Considerations – Short Circuits. Introduction to short-circuit studies – Sources of short circuit currents – Symmetrical currents.
S. R. Folger, Mgr., Power Generation Engrg., General Electric Co., Schenectady, N. Y.

October 10 – Short Circuits, Effects of synchronous and induction machines – Decrement factors – Multiplying factors – Per unit and percent systems – Determination of system impedance data.
S. R. Folger, Mgr., Power Generation Engrg., General Electric Co., Schenectady, N. Y.

October 17 – Short Circuits, Calculating procedures – Effects of faults – How to make a short circuit study – Use of handbook data – Examples.
S. R. Folger, Mgr., Power Generation Engrg., General Electric Co., Schenectady, N. Y.

October 24 – Selection and Application of Protective Devices. Need for adequate devices – Significance of breaker and fuse ratings. – Use of application tables – Equipment available – Movies of short-Circuit Tests.
Paul Reifschneider, Mgr. Appl. Engr., General Electric Co., Phila. Works.

October 31 – Selection and Application of Protective Devices. (continued) BRKR ratings and fuse ratings – Factors to consider in selection of equipment – Problem solutions.
Frank Shields, Consulting Appl. Engr., General Electric Co., Schenectady, New York.

November 7 – Power System for Industrial Buildings. Voltage and circuit selection for small, medium and large buildings, schools, etc. – 460Y/265-volt systems – Economic factors affecting selection – Overcurrent protection – Selection of proper and economical equipment for buildings fed from high short-circuit capacity networks.
J. C. Cranos, App. Engr., General Electric Co., New York City, New York.

November 14 – Power Factor Improvement and Voltage Calculations, P. F. fundamentals – Calculation methods – Capacitors facts and fallacies – Rate studies – Release of system capacity by P. F. improvement – Capacitor economics – Instruments and measurements for P. F. studies – Calculation of steady state voltage drop – Use of voltage drop charts.
W. C. Bloomquist, Mgr., Power Distribution Market Development, General Electric Co., Schenectady, New York.

November 21 – Voltage Improvement. Reasons for good voltage – Methods of reducing voltage drop, spread and flicker – Calculation of system voltage dips due to motor starting – Power considerations associated with SCR drives and AC/DC rectifier – Power conditioning for computers – UPS Systems.
D. H. Kirby, App. Engr., General Electric Co., Phila., Pa.

November 28 – Overvoltage-Grounding. Nature and cause of overvoltages – Demonstration of grounded versus ungrounded overvoltages – Demonstration of grounded versus ungrounded systems – Case studies – Selection of grounding methods – Selection of lightning arresters and surge capacitors.
George Walsh, Mgr. Elec. Power Systems, Advanced Engrg., General Electric Co., Schenectady, New York.

December 5 – Wire and Cable. Selection and application of cables for main and branch circuits – Overhead versus underground systems – Shielding practices – Splicing and terminating.
E. Politi, General Electric Co., Division Wire and Cable, New York City New York.

December 12 – Relaying Coordination. Factors to be considered in coordination studies – Use of time-current curves – Protective device characteristics – Examples of coordination – Inherent protection of motors – Code and standards consideration.
F. A. Leinberger, Appl. Engr., General Electric Co., Phila., Pa.

December 19 – Industrial Relaying. Problems associated with parallel operation of utility and industrial systems reclosing on systems with synchronous motors, differential protection ground sensors.
E. M. Smith, App. Engr. General Electric Co., Phila., Pa.

For further information call – Pete Drobach – 376-9000.

TIME ..... 7:00 – 9:30 PM Tuesday evenings – beginning September 26, 1972.
PLACE ..... Main Auditorium, Automatic Switch Co., 50-56 Hanover Rd., Florham Park, N. J.
FEE ..... $75.00 to members of IEEE, ASME, AIME, ASCE, etc. $85.00 to non-members.
SPECIAL OFFER – A $5.00 savings for advance registrants whose mail registrations are received prior to September 8, 1972.

REGISTRATION FORM – ELECTRICAL POWER DISTRIBUTION FOR BUILDINGS

Mail to: Peter A. Drobach, General Electric Company, 25 E. Willow Street, Millburn, New Jersey 07041

Phone: (201) 376-9000

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APPLIED SOLID STATE PROTECTIVE RELAYING

This 8 session course will provide a good working understanding of protective relay application techniques. Strong emphasis will be given to solid state relays, where they have been developed. The course will also include an introduction to solid state devices and basic relay circuits.

The instructors will include: J. Lewis Blackburn, Consulting Engineer, Westinghouse Relay & Instrument Division; Walter A. Elmore, Fellow Engineer, Westinghouse RID; Roger E. Ray, Senior Engineer, Westinghouse RID.

GENERAL PROTECTIVE RELAYING CONCEPTS

- A. Phasors
- B. Polarity
- C. Symmetrical components
- D. Instrument transformers

II SOLID STATE DEVICES AND RELAY CIRCUITS

- A. Diodes
- B. Transistors
- C. Thyristors
- D. Amplifiers
- E. Buffers

III. SOLID STATE RELAY CIRCUITS (cont'd)

- A. Flip flops
- B. Gates
- C. Ring Modulators
- D. Phase comparitors
- E. Protection from transients

IV. TRANSMISSION LINE RELAYING

- A. Line and Feeder Protection Principles
- B. Pilot Relaying Systems
  - Blocking
    - Directional Comparison
    - Phase Comparison
  - Transfer Trip
    - Under reach, Permissive, Non-Permissive
    - Overreach

V. COMMUNICATION, CARRIER AND TONE RELAYING

- A. Carrier Channel
  - Coupling Techniques
  - Attenuation considerations
- B. Microwave Channel
- C. Wire Pair
  - Audio Tones
- D. System Stability and Relaying

VI. OUT OF STEP RELAYING AND RECLOSING

- A. Stability from the Relay Engineers Viewpoint
- B. Out of Step Relaying
- C. Reclosing

VII. MOTOR AND GENERATOR PROTECTION

- A. Fault Protection
  - Phase
  - Ground
- B. Negative Sequence Protection
- C. Phase Unbalance Protection
- D. Thermal Protection

VIII. TRANSFORMER PROTECTION (AUTO, 2 WINDING, 3 WINDING) LOAD SAVING AND COURSE REVIEW

TIME: . . . . . 7:00-9:00 P.M.; Thursday evenings starting September 28, 1972 and ending November 16, 1972.

PLACE: . . . . Automatic Switch Co., 50-56 Hanover Road, Florham Park, N. J. 07932.

INFORMATION . For additional information contact: Fred Hazard, Westinghouse Electric Corporation, 67 Evergreen Place, East Orange, New Jersey 07019. Phone: 465-2364.

REGISTRATION FORM - SOLID STATE PROTECTIVE RELAYING

Send to: Mr. F. Hazard, Westinghouse Electric Corporation
67 Evergreen Place, East Orange, New Jersey 07019

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—— Non-Member - $55.00; Registration Prior to Nov. 6 $50.00

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PROFIT PLANNING FOR ENGINEERS IN MANAGEMENT

The Northern New Jersey Education Committee is again presenting a seminar type program relating marketing, finance and general business economics to the decision-making procedure in technical enterprises. The course is directed to higher echelon managers who have advanced through engineering and technical lines, but whose scope now encompasses profit planning for comprehensive operations.

A particular objective of the course is the exploration of vital elements affecting profitable business decisions—so that managers with primarily technical backgrounds can communicate effectively with marketing and financial experts. This can lead to better preparation of comprehensive programs, improved defense of points which might be questioned, and more authoritative leadership in developing and managing broad-based business endeavors.

Due to the nature of the subject matter, the course will be restricted to persons with backgrounds in accounting, statistics and engineering economics, and whose positions indicate likely benefit from the course content. Class size will be limited, and the committee will exercise judgment in selecting applicants. A textbook and notes are included with the program.

The lecturer will be Murray Menkis, president of Menkis Engineering Associates. Mr. Menkis holds a B. E. E. from Newark College of Engineering, and an M.B.A. from Baruch School of Business Administration. He is licensed as a professional engineer in New York, New Jersey and Connecticut. His experience includes over twenty years in the development of electrical control devices, and consulting practice in profitable exploitation of technical innovations.

October 17-Introduction
- A. Characteristics of a free enterprise system; profit as a consequence of "beneficial innovation," "beneficial innovation" as an improvement in the "cost-benefit" matrix for goods and services.
- B. Role of the engineer in economic progress
- C. Planning for Product Improvement and New Product Design
  1. Objectives of the firm
  2. Evaluation of present and potentially available resources
  3. Requirements in markets for firm's product capacity

October 24-Data Required for a Decision (1)
- A. Broadview of market economics
- B. Supply segment of markets; technological trends in supply

October 31-Data Required for a Decision (2)
- A. Demand segment of market
- B. Technological changes in market requirements

November 7-Data Required for a Decision (3)
- A. Optimizing firm resources to meet market requirements more satisfactorily than alternate suppliers
- B. Cost considerations

November 14-Data Required for a Decision (4)
- A. Intangible factors
- B. Cash flow and return-on-investment calculations

November 21-Pricing and Strategy in Technical Markets
- A. Theoretical pricing methods (marginal cost equals marginal revenue)
- B. Long term considerations-maintenance of "technical primacy," avoidance of excessive competition, stability
- C. Strategic technical marketing

November 28-Analyzing the Supply Segment of the Market
- A. Recent trends of sales and costs in the product line
- B. General directions of technical developments, and market objectives sought
- C. Price and profit trends
- D. Statistical appraisal and projection

December 5-Analyzing the Demand Segment of the Market
- A. Recent trends of purchases and prices in the product line
- B. Determination of areas of possible dissatisfaction, and probing of "need" from a cost-benefit viewpoint
- C. Future implications of technological trends
- D. Econometric and statistical projection of future purchases

December 12-Evaluation of Intangibles
- A. Quantification of intangibles (equivalent benefit method)
- B. Political, sociological, psychological and irrational considerations

TIME . . . . . 7:00 P. M. to 9:00 P. M. Tuesday Evening.
LOCATION . . . Automatic Switch Co., Hanover Rd., Florham Park, N. J.
FEE . . . . . $90.00 to members (IEEE, EMG, ASME, etc.) $100.00 non-members

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6 Watsessing Ave., Bloomfield, N. J. 07003 Phone: 966-2459

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ASME

EDUCATIONAL PROGRAM—FALL 1972

REVIEW STUDY GROUPS — FOR PROFESSIONAL ENGINEER EXAMINATIONS

This program is designed to prepare candidates for Professional Engineering License examinations in New York and New Jersey. The material is consistent with the national type of exam used for the New York license examinations. Candidates for Part I and Part II should enroll in Study Group No. 1, No. 2 and No. 3. The New York State Board permits graduates of approved schools to take Parts I and II and qualify for "Engineering-in-Training." New York exams will be held in December 1972 and April 1973. Please note that the fall course will be completed prior to the December exam.

ENDORSED BY NYSSPE

BASIC ENGINEERING SCIENCES I (IEEE-ASME) — **STUDY GROUP NO. 1**

Review for Part I and Part II, N. Y. Exam. Review will cover practical applications of Statics, Mechanics, and Mathematics.

MONDAYS, Starting August 28, 1972, 6:15-8:45 P.M., 12 Sessions
Auditorium, 19th Fl., Consolidated Edison Co., 4 Irving Place, N.Y.C.

Instructor: O. Ondra, P.E., Professor of Civil Engineering, Manhattan College

BASIC ENGINEERING SCIENCES II (ASME-IEEE) — **STUDY GROUP NO. 2**

Review for Part I and Part II, N. Y. Exam. Review will cover practical applications of Dynamics, Fluid Mechanics, Thermodynamics, and Electrical Principles.

TUESDAYS, Starting September 5, 1972, 6:30-9:00 P.M., 12 Sessions
Room 1701, Consolidated Edison Co., 4 Irving Place, N.Y.C.

Instructor: P. Szabados, P.E., Consolidated Edison Co.

ENGINEERING ECONOMICS AND PRACTICE (IEEE-ASME) — **STUDY GROUP NO. 3**

Review for Engineering Economics for all three sections of the exam. Review will cover economic comparisons, annual cost, present worth, and rate of return. Fixed and operating costs, accounting and cost analysis, depreciation, taxes and valuations will also be reviewed.

THURSDAYS, Starting August 31, 1972, 6:30-9:00 P.M., 12 Sessions
Room 1425, Consolidated Edison Co., 4 Irving Place, N.Y.C.

Instructor: R. E. Mendoza, P.E., Public Service E. & G. of N. J.

MECHANICAL ENGINEERING (ASME) — **STUDY GROUP NO. 4**

Review for Mechanical Engineering Section of Part III, N. Y. Exam. Application of mechanical engineering principles to combustion, gas dynamics, compression shock, nozzle design, steam power plant cycles, psychrometrics, air conditioning heat transfer, nuclear reactors, Mach cone, Kinetics, gyroscope motion, vibratory motion, balancing of machines, compound shafts, design of gears, hydraulics, pumps and fans, stress and deformation of machine elements, etc.

WEDNESDAYS, Starting August 30, 1972, 6:30-9:30 P.M., 14 Sessions
Room 1701, Consolidated Edison Co., 4 Irving Place, N.Y.C.

Instructor: M. Kurtz, P.E., Consulting Engineer

ELECTRICAL ENGINEERING AND APPLICATIONS (IEEE) — **STUDY GROUP NO. 5**

Review for Electrical Engineering Section of Part III, N.Y. Exam. Electrical Engineering Principles and Applications of: transformers a-c and d-c machines, transmission lines, filters, wave guides, networks, impedance matching, bridges, coupled circuits, resonance, harmonics, transients, three-phase power, amplifiers, electronic circuits. Root locus and Routh Criteria.

WEDNESDAYS, Starting September 6, 1972, 6:30-9:00 P.M., 12 Sessions
Room 1425, Consolidated Edison Co., 4 Irving Place, N.Y.C.

Instructors: L.E. Burnett, P.E., PASNY; S. Sonsky, P.E., Queensborough Community College

Group Coordinators for Groups 1, 3 and 5: *Shelton Heitman, Otis Elev. (212)-244-8000, X685; John Zeller, Con. Ed., (212)-460-4280*

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NEW YORK SECTION IEEE
POWER & INDUSTRIAL DIV.

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EDUCATIONAL PROGRA

STUDY GROUP NO. 6
ELECTRICAL SYSTEMS FOR WATER POLLUTION CONTROL & SOLID WASTE DISPOSAL FACILITIES

MONDAYS, 6:30-8:30 P.M., Starting September 11, 1972
Consolidated Edison Company, Rm. 1701, 4 Irving Place, N.Y., N.Y. 10003

Group Sponsors: *H. Blumenthal, Dept. Water Resources*
W. Beckmann, Electrical Consultant

Chief Group Coordinator: Joseph Dedeo, ASCO, Tel. (212)-344-3765
Group Coordinator: Jack Buchsbaum, Con. Ed., Tel. (212)-460-6414
Group Coordinator: R. Koestner, Busmann Mfg. Co.
Tel. (212)-267-1466

A – WATER POLLUTION CONTROL

1. **September 11 - Water Pollution Control** - Review of Sewage Collection Systems and Treatment Facilities - present and future. Process flow design and equipment review. Collection systems. Pumping stations. Primary secondary and Tertiary Treatment, Effluent and Sludge Disposal. Biochemical action.
Nicholas Bartilucci, PE, Wm. Cosulich, Environmental Engineers

2. **September 25 - Design of Electrical Systems** - Load Estimating, High and Low Voltage Distribution systems. Switchgear Configurations, Continuous or Standby Power Generation, Redundancy, Utilization Voltages, Motor Control, Process Monitoring.
William Daley, PE, Malcom Pirnie, Inc. Environmental Engineers

3. **October 2 - Pumping Systems** - Pumping Stations, fixed & variable pumping systems, aeration blowers, hazardous & corrosive areas, lighting, communication and alarm systems.
Len O'Reilly, P.E., & Chris Dukas, E.E.
N.Y.C. Dept. of Water Resources

4. **October 16 - Monitoring & Control Systems** - Instrumentation Systems, telemetering, data logging, feedback and computer control systems.
Thomas Blocher, Marketing Mgr., Fisher Porter Co.

5. **October 30* - Tour of N.Y.C. Treatment Facility & Pump Station Inspection** - Tour of Facilities and Discussion of Operating and Maintenance Considerations.

B – SOLID WASTE DISPOSAL

6. **November 6 - Incineration & Landfill** - Review of solid Waste Facilities with emphasis on process design and equipment. Batch & Continuous Furnaces and support equipment. Air pollution control and high temperature furnaces.
Wm. Beckmann, PE, Consulting Engr.

7. **November 13 - Design of Electrical Systems** - Load Estimating, Continuous Power Generation, Fail Safe Systems, AC/DC Drives, Motor Control, Lighting and Communication Systems.
Wm. Beckmann, PE, Consulting Engr.

8. **November 20 - Instrumentation** - Instruments and Automatic Controls for Furnace Temperature, Draft, Process Water, Conveying Systems, Alarms, Graphic Control Panels.
Gerald G. Moyer, Applications Engr.
Honeywell Corp.

9. **November 27 - Air Pollution Control Systems** - Wet Baffles Cyclones, Scrubbers & Electrostatic Precipitators, Economies, Efficiency, Precipitator High Voltage, Control Systems.
James De Stefano, Wheelabrator Frye Corp.

10. **December 4* - Tour of Incineration Facility** - Inspection-Tour of Facility and Discussion of Operating and Maintenance Considerations.

*Dates of tours are tentative.

STUDY GROUP NO. 7
ENGINEERING COMPUTER PROGRAMMING– PART I

TUESDAYS, 6:30-8:30 P.M., Starting September 12, 1972
Consolidated Edison Company, Rm. 1425, 4 Irving Place, N.Y., N.Y. 10003

Chief Group Coordinator: Gary Golinski, Busmann, Tel. (212)-267-1466
Group Coordinator: Bill Perlman, Roytran Co., Tel. (212)-782-1505
Group Coordinator: Kent Weytzel, Whse., Tel. (212)-692-3613

Instructor: D. Hawkins
Consolidated Edison Company

This is a basic FORTRAN programming series with emphases on engineering applications. No previous computer experience is necessary. Homework problems and class problems will be used to aid the student in mastering the language. This series will serve as an introduction to several more advanced computer programming courses which are planned for the Spring, 1973 program and future programs.

1. **September 12 - Introduction to Fortran Programming**
2. **September 19 - Arithmetic Statements**
3. **September 26 - Control and Decision Statements**
4. **October 3 - Boolean Algebra and Complex Numbers**
5. **October 10 - Input, Output, and Format Statements**
6. **October 17 - Additional Types of Format Statements, Data Statements, Basic System Subroutines**
7. **October 24 - Subprograms and Arrays**
8. **October 31 - Sequential and Direct Access Files**
9. **November 14 - System Programming and Analysis Techniques**
10. **November 21 - Mechanical and Electrical Engineering Applications**

STUDY GROUP NO. 8
FUNDAMENTALS OF ELECTRICAL DESIGN— PART III

Practical Design Principles for Industrial and Commercial Buildings

WEDNESDAYS, 6:30-8:30 P.M., Starting September 13, 1972
Roger Smith Hotel, Lexington Avenue & 47th St., New York, New York

Group Sponsor: *J.V. Domorski, Automatic Switch Co., Tel. (212)-344-3765*

Chief Group Coordinator: *R. Dale, Automatic Switch Co. Tel. (212)-344-3765*
Group Coordinator: *Alex Korn, Stone & Webster Tel. (212)-592-9300*
Group Coordinator: *Jalal Gohari, AEP Tel. (212)-422-4800, X551*

The third of a series of ten-session study courses for electrical, consulting and project engineers, contractors, architects and others who are concerned with power design.
The course will stress practical design and application information in electrical power building design based on actual experience over abstract theory.
Part III sessions will be presented by Mr. Harvey Walcoff, Electrical Staff Consultant for New York State, Urban Development Corp.

1. **September 13 - One Line Diagrams & Project Planning**
2. **September 20 - Energy Conservation**
3. **September 27 - Utility Negotiations**
4. **October 4 - Identification & Sizing of Loads**
5. **October 11 - Site & Interior Distribution Systems**
6. **October 18 - Design Details**
7. **October 25 - Energy Distribution System**
8. **November 1 - Specifications & Estimates**
9. **November 8 - Innovations in the Industry**
10. **November 15 - Summation & Review**

STUDY GROUP NO. 9
ENGINEERING PROJECT MANAGEMENT

THURSDAYS, 6:30-8:30 P.M., Starting September 14, 1972
Consolidated Edison Co., Rm. 1701, 4 Irving Place, N.Y., N.Y.

Group Sponsors: *Sidney Friend, Dept. of Ports & Terminals Tel. (212)-566-6602*
Neville Softleigh, Public Serv. Elec. & Gas Tel. (201)-622-7000, X2164

Chief Group Coordinator: *Lewis Burnett, PASNY Tel. (212)-265-6510, X266*
Group Coordinator: *Sam Digwo, Con Edison Tel. (212)-460-6737*
Group Coordinator: *Al Cox, Busmann Manuf. Co. Tel. (212)-267-1466*

This series of lectures is designed for engineers who are interested in commercial, industrial or institutional building type projects, regardless of their academic specializations. However, this series should be of special interest to the electrical engineer who finds himself becoming more involved as a project manager.

1. **Introduction** - Project initiation, format of construction project; organization chart; role of project manager.
Speaker to be announced

2. **September 21 - Project Design** - Owner-architect relationship; feasibility studies; preliminary design; models; specifications and drawings; concrete, steel and wood structures.
C. Morrisey, Praeger-Kavanaugh, Waterbury

3. **September 28 - Project Design Team** - Inter-relationships between Architect, Structual, Mechanical and Electrical engineers; areas of responsibility on planning and designing the project.
C. Morrisey, Praeger-Kavanaugh, Waterbury

4. **October 5 - Bidding Procedures & Estimates** - Bidding procedures, bid depository, instructions to bidders; estimating types of estimating; stationery; unit estimates; common sources of error in estimating.
C. Morrisey, Praeger-Kavanaugh, Waterbury

5. **October 12 - Finance** - Contractor's personal equity in the project; methods of raising working capital; sources of credit; trade discounts; overhead expenses, profit, and income tax; depreciation; equipment leasing; schedules and maintenance.
Speaker to be announced

6. **October 19 - Building Site** - Locating the building site; site inspection, excavating, dewatering; temporary facilities, field office, Building Superintendent, Yard Master, Watch men.
C. Morrisey, Praeger-Kavanaugh, Waterbury

7. **October 26 - Bonds & Insurances** - Types of bond and insurances required; what they cover; those that are obligatory; those that are optional.
Speaker to be announced

8. **November 2 - Contract Documents** - Types of contracts; methods of wording contracts; subcontractor qualification statements; progress payments to subs.
Speaker to be announced

9. **November 9 - Construction Schedules** - Gantt Bar Chart; CPM; financial estimate for individual jobs; change orders; daily progress reports, time cards.
C. Morrisey, Praeger-Kavanaugh, Waterbury

10. **November 16 - Management Relationships** - Relations with staff; relations with Union; leadership and motivation, safety and workmen's compensation boards, interviewing applicants for positions, review.
Philip Hartten, Rudin Management

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EDUCATIONAL PROGRAM
FALL 1972

Metropolitan Section

ASME

REGISTRATION INFORMATION

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1, 3	$30 each for Members, IEEE, ASME, NYSSPE; $40 each for all others	"POWER & IND. GROUP N. Y. SECTION IEEE"	*I. M. Berger,* Vice Chairman Educational Committee, IEEE N.Y.C. Transit Authority, Rm. 1200 370 Jay St., Brooklyn, N. Y. 11201 Phone: (212) 852-5000, Ext. 4495
5	$50 each for Members, IEEE, ASME, NYSSPE; $60 each for all others		
2, 4	$30 each for Members, IEEE, ASME, NYSSPE; $40 each for all others	"ASME METROPOLITAN SECTION"	*Thomas Gucciardo,* Educational Comm. ASME, Metropolitan Section N.Y.C. Health & Hospital Corp. Bureau of Engineering & Maintenance 66 Leonard St., N. Y., N. Y. 10013 Phone: (212) 566-6940
6, 7, 8, 9	$25 each for Members, IEEE, ASME, NYSSPE; $35 each for all others	"POWER & IND. GROUP N. Y. SECTION IEEE"	*Harry Johnson,* Vice Chairman Educational Committee, IEEE Automatic Switch Co. 95 River Street, Hoboken, N.J. 07030 Phone: (201)-966-2109

Fill out one registration form for each group and mail with payment

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REGISTRATION FORM

Name (printed) .....

Firm ..... Position .....

Business Address .....

..... Phone No. .....

Home Address .....

.....

Study Group .....

Member of:

☐ IEEE

☐ ASME

☐ OTHER .....

☐ NON-MEMBER

I intend to apply for membership in .....

(Do Not Write In This Space)

Admission Card No. .....

Refund Certificate No. .....

Fee Paid $..... (Cash, Check, M.O.)

Date ..... By .....

Note: See Registration Information for Checks

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