AN OPEN LETTER TO ALL MEMBERS OF THE NORTH JERSEY SECTION

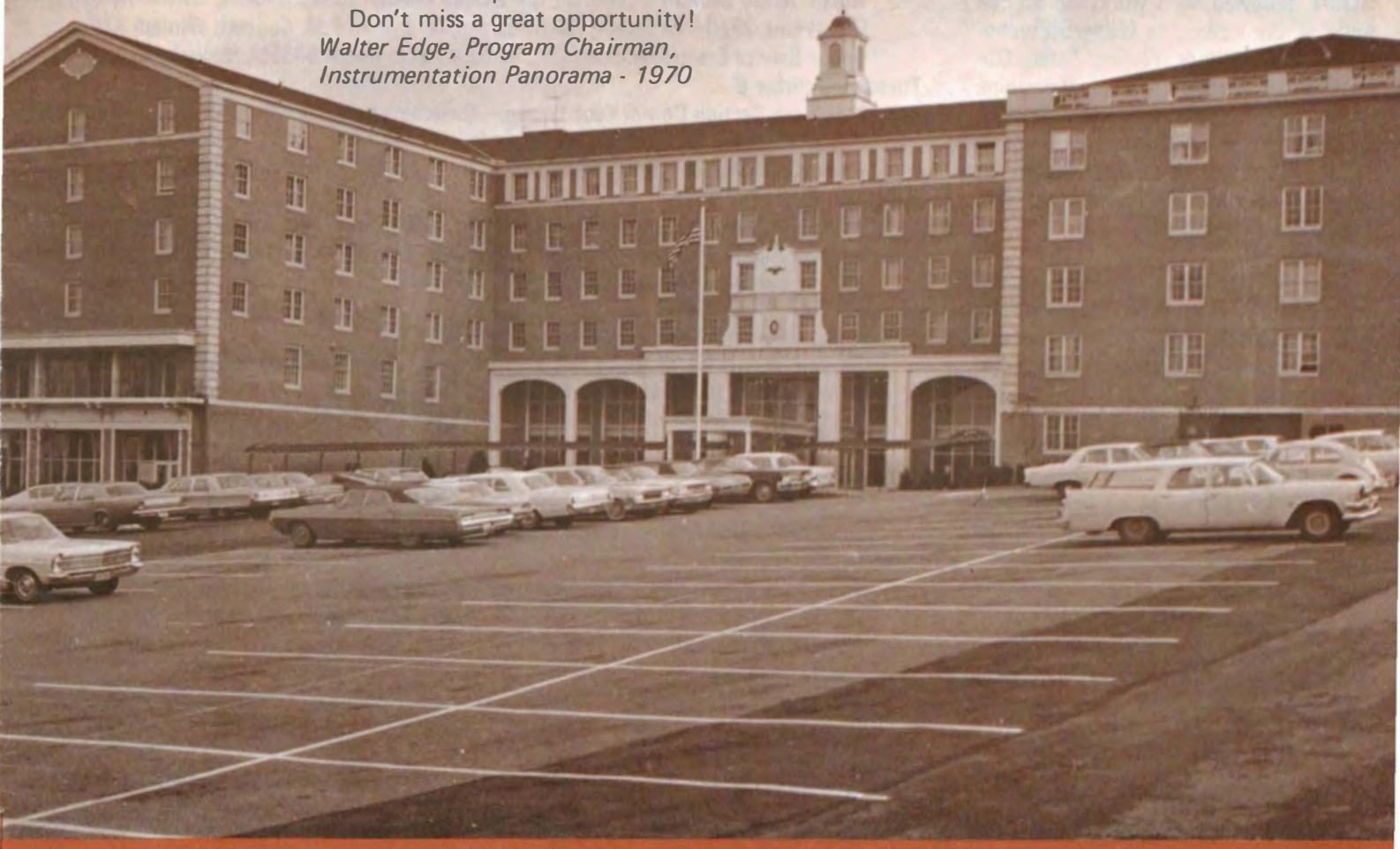
Today, more than ever, every engineer owes it to himself....to his company....to his profession to *stay abreast of his technology*.

Although the electrical/electronics industry is undergoing a recession of significant proportions, the *technology* continues to advance and diversify at top speed. And the future will demand--of every individual and every company--that we keep pace, and prepare ourselves for flexible transition, to fields of application and research as yet uncharted.

Instrumentation Panorama 1970 has been *designed to provide useful, meaningful insight* into many of the areas of intense activity--not just in Instrumentation and Measurement, but in the systems and applications for such techniques and hardware.

Don't miss a great opportunity!

Walter Edge, Program Chairman,
Instrumentation Panorama - 1970



The IEEE
Newsletter
The Magazine of the North Jersey Section

IP-70 IEEE

Instrumentation Panorama — 1970

Governor Morris Inn, October 14-15, 1970

See pages 9-12 or write Box 365, Union, N. J. for details

SEPTEMBER, 1970

Career Clinic Combines Lectures and Workshops

The IEEE Engineering Management Group and the PIB Department of Industrial Management will co-sponsor a "Career Clinic" on September 26 at the Long Island Graduate Center of the Polytechnic Institute of Brooklyn.

Workshops and Lectures

Each of the sessions will consist of a lecture, followed by a workshop on the topic of the lecture, as follows: Psychological and Aptitude Testing; Career Objectives and Goals; How to Determine when your Career is in Trouble; Internal Corporate Politics; How to Shift Technological Gears, i.e. Changing Industries, Changing Careers; and Summary, Films, Free Discussion, etc.

Registration

The fee for IEEE members, AIAA members, and Alumni of Polytechnic Institute is $25.00, and $35.00 for others. These fees cover the lectures, workshops, coffee breaks, lunch, a book, and notes.

Time: Saturday, September 26; 10:00 A.M. to 4:00 P.M.

Place: Long Island Graduate Center of the Polytechnic Institute of Brooklyn, Route 110, Farmingdale, Long Island.

Additional Information: Call Jack Vaughan, Grumman Aircraft (516) 575-1535, or Dr. Goldberg (212) 643-4998, or Dr. I. Gray (212) 969-0665 of the Polytechnic Institute.

---

*Name*_____

*Position*_____

*Firm*_____

*Phone*_____

*Business Address*_____

_____

Check one:

☐ IEEE Member ☐ AIAA Member
☐ PBI Alumnus ☐ Non-Member

Make check payable to EMG/IEEE and mail to Stanley Kramer, 14 Thunderbird Drive, Oakland, N. J. 07436.

MEETINGS CALENDAR

Wednesday, September 16
North Jersey Section – Field Trip to Public Service Testing Laboratory, 200 Boyden Avenue, Maplewood, N. J. 7:00 P.M.

Thursday, September 24
New York Metropolitan Chapter – Charge Coupled Devices, G. E. Smith, Speaker, General Telephone and Electronics, Bayside, N. Y. 8:00 P.M.

Saturday, September 26
IEEE Engineering Management Group and the PIB Department of Industrial Management – Career Clinic, Long Island Graduate Center of the Polytechnic Institute of Brooklyn, Route 110, Farmingdale, N. Y. 10:00 A.M.-4:00 P.M.

Monday, September 28
North Jersey Section – Tour of the Owens Illinois Glass Facilities, Owens Illinois Glass Plant, 2220 91st Street, North Bergen, N. J. 7:15 P.M. Contact: William Kelly, Public Service Electric and Gas Co., 80 Park Place, Room 8335M, Newark, N. J.

Tuesday, October 6
New York Section Comm Tech Group – Switching Systems and Their Applications, A. N. Daudelin, Jr., first lecture of six-lecture fall series, Little Theater, New York Telephone Company, 140 West Street, New York, N. Y. 6:30-8:30 P.M.

Thursday, October 8
New York Metropolitan PMP Groups (G-21) – The Electronics Industry–Conversion and the Import Problem, Dr. John E. Ullmann, Speaker. Main Auditorium, Bell Telephone Laboratories, Murray Hill, N. J. 8:00 P.M.

Wednesday, **October 14 and Thursday, October 15**
Second Annual North Jersey IEEE Conference – New Horizons in Instrumentation, eight sessions, **Governor Morris Inn, Morristown, N. J. 9:30 A.M.-9:00 P.M. and 9:30 A.M.-4:30 P.M.**

Saturday, October 17
New York, North Jersey and Long Island Joint Chapter on Instrumentation & Measurement – USAECOM Laboratories Tour, Fort Monmouth, N. J. 10:00 A.M.

Tuesday, October 20
Education Committee of the North Jersey Chapter – Recent Developments Affecting the Engineering Profession, Dr. John E. Ullmann, Speaker, Allied Chemical Auditorium, Morristown, N. J. 7:00 P.M.

Thursday, October 22
P&I New York Section – Inspection Tour of Automotive Diagnostic Clinic, Lear-Siegler, Inc., Paramus, N. J. 7:00 P.M.

Tuesday, November 10
New York, North Jersey and Long Island Joint Chapter on Instrumentation & Measurements – Analog to Digital Conversion Today, Newark College of Engineering, New Jersey. 9:00 A.M.-4:00 P.M.

Wednesday, November 18
Multi-Group Joint Chapter–The Environment and Electric Power Generation, Arnold Auditorium, BTL, Murray Hill, N. J. 8:00 P.M. (See October Issue.)

Device Group Sets Meets

The New York Metropolitan Chapter of the IEEE Electron Devices Group has established meeting dates and locations for the coming year as follows:

September 24, 8:00 P.M., GT&E, Bayside, N. Y.

November 19, 8:00 P.M., IT&T, Nutley, N. J.

January 14, 1971, 8:00 P.M., GT&E, Bayside, N. Y.

February 25, 1971, 8:00 P.M., IT&T, Nutley, N. J.

April 14, 1971, half or full day symposium, The City College of New York, Bronx, N. Y.

May 20, 1971, 8:00 P.M., United Engineering Center, Manhattan, N. Y.

The agenda for the fall, winter and spring meetings will be announced in future issues of the Newsletter.

The IEEE **Newsletter**

Published monthly except July and August by the North Jersey Section of the Institute of Electrical & Electronics Engineers, Inc. Office of Publication: 9 Little John Road, Morris Plains, N. J.

Volume 17 September 1970 No. 1

Deadline for receipt of material is the 15th of the second month preceding month of publication.

All communications concerning the Newsletter including editorial matter, advertising, and mailing, should be addressed to: The NEWSLETTER, c/o Girard Associates, Inc., P.O. Box 666, Mt. Arlington, N. J. 07856, Phone: 398-5524.

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

Second Class Postage Paid
at Morris Plains, N. J.

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

It is not necessary to inform the North Jersey Section when you change your mailing address. The NEWSLETTER and other section mailings use a list provided by IEEE's national headquarters in New York. This means the Section has no need to maintain a mailing list or addressing plates. Section membership records are changed when Headquarters notifies us.

Section Field Trip to PS Testing Labs

The North Jersey Section is sponsoring a tour of the extensive facilities of the Public Service Electric and Gas Company's Testing Laboratory at Maplewood, New Jersey on September 16, at 7:00 P.M.

The Laboratory carries on such tests or technical investigations as may be required in the design, operation, or development of the equipment and processes used throughout the Public Service organization. The work at the Testing Laboratory consists of routine and special activities; the former includes such tasks as instrument standardization and inspection of purchased materials, while the latter provides support for all Company departments and particularly performs missions associated with new construction.

About the Tour

The tour will start with the showing of a film on the Laboratory activities in connection with the plant construction at the Salem Nuclear Generating Station. This will be followed by a guided tour of the Testing Laboratory. Supervisory engineers will be on hand to describe the latest activities of the four major Laboratory Divisions: Electrical, Mechanical, Materials, and Chemical. The formal part of the program is expected to last approximately two hours. This will be followed by some light refreshments and an opportunity for informal discussions.

The nature of this tour is such that advance registration would be appreciated. So please fill out and mail the registration form early. All IEEE members and guests are welcome.

How to Get There

The Laboratory is located at 200 Boyden Avenue in Maplewood, N. J. just off Springfield Avenue.

Time: Wednesday, Sept. 16; 7:00 P.M.
Place: Public Service Testing Laboratory, 200 Boyden Avenue, Maplewood, N. J.

REGISTRATION FORM

Prof. H. J. Perlis
Newark College of Engineering
323 High Street, Newark, N. J. 07102

Please save.....places for

Name.....

Company affiliation.....
at the September 16, 1970 Field Trip to the Public Service Electric and Gas Co. Testing Laboratory.

Owens-Illinois Glass Facilities to be Toured

The North Bergen plant of Owens Illinois houses their glass container manufacturing facilities. Raw materials which consist of sand, soda ash, and limestone are mixed and fed into four furnaces where they are melted down. Through gravity action the molten glass is placed into a forming machine (the modern equivalent of a glass blower) where glass containers are formed in sizes varying from small medicinal bottles to gallon jugs. The containers are then annealed, inspected, packaged in corrugated boxes and shipped to the customer.

The tour will cover all these operations and will last approximately one hour and twenty minutes, beginning promptly at 7:15 P.M. The Owens Illinois Glass plant is located in North Bergen, N. J. at 2220 91st St., just west of Rt. 1-9, approximately midway between Rt. 46 and Rt. 3. Those planning to attend should mail in the reservation slip before September 21 or call Mr. Kelly at 622-7000, Ext. 3162. Limited to 25 people. Minimum age - 14 years.

Time: Monday, September 28; 7:15 P.M.
Place: Owens Illinois Glass Plant, 2220 91st Street, North Bergen, N. J.

RESERVATION FORM

William Kelly
Public Service Elec. & Gas Company
80 Park Place, Room 8335M
Newark, N. J. 07101

I plan to attend the Owens Illinois Tour on September 28. I will bring.....guests.

Name.....

Address.....

.....Phone.....

Events Affect Engineers

The Education Committee of the Northern New Jersey Chapter of IEEE, in conjunction with the ASME will present a lecture entitled "Recent Developments Affecting the Engineering Profession--the impact of reduced defense expenditures, increased technical activity abroad, and how the profession can cope with ensuing dislocations." Specific recommendations will be advanced to foster effective utilization of the nation's technical resources, and will include suggestions to individual engineers whose professional marketability is imperiled. The speaker, Dr. John E. Ullmann, is Professor of Management at Hofstra University; he has written a number of papers on the subject and is a recognized authority in the field.

The lecture is scheduled for October 20, 1970 at 7:00 P.M. in the Allied Chemical Auditorium, main entrance Columbia Road (Route 510) at Park Avenue in Morristown (Morris Township), New Jersey.

Time: Tuesday, October 20; 7:00 P.M.
Place: Allied Chemical Auditorium, Morristown, N. J.

IP-70 IEEE

ATTEND INSTRUMENTATION PANORAMA — 1970

Second Annual Technical Conference on Instrumentation & Measurement
October 14-15, 1970

Sponsored by the North Jersey Section IEEE

PRACTICAL COMPUTER-AIDED SYSTEMS EMPHASIZED

Component and Circuit Design. Industrial Instrumentation. Production Testing. Data Acquisition, Analysis, and Transmission Power-System Measurement

VITAL NEED FOR NEW INSTRUMENT DESIGNS KEYNOTED

Keynote Address by Dr. Thomas C. Winter, Jr.,
Staff of President's Council On Environmental Quality--
New Instrumentation Challenges for Environmental Analysis and Control in the 1970's.

8 MAJOR TECHNICAL SESSIONS
(32 State-of-the-Art Papers)

- Computer-Aided Instrumentation for Everyman
- Designing "Hazard-Free" Instrumentation
- New Analog & Digital Transducers & Sensors
- Data Communications For Acquisition & Computation
- Modern Power-System Measurement
- Will Re-Educating Engineers Close the Gap?
- Gigahertz Measurements--Hardware & Techniques
- What Cost Reliability in Instrumentation?

4 THREE-HOUR "CRAM" COURSES

- Design of Active Filters
- Application of Memory Systems To Instrumentation
- BASIC--A Programming Language For English-Speaking Persons
- Secondary-Standard Metrology

SEE CENTERFOLD INSERT FOR ADVANCE PROGRAM DETAILS AND RESERVATION FORM

SAVE TIME

don't stand in line

REGISTER NOW

TO: Instrumentation Panorama – 1970, IEEE

Please register me for your Second Annual Conference on Instrumentation & Measurement, to be held October 14-15, 1970 at the Governor Morris Inn, Morristown, New Jersey.

Name (print) _____

Company _____

Address _____

City _____

State _____ Zip _____

IEEE Affiliation:

☐ Member ☐ Student Member ☐ Non-Member

Section _____ Group _____

Matriculated engineering student at _____

☐ Undergraduate Student ☐ Graduate Student

Please register me for:	Reg. Mem.	Non-Mem.	Stud. Mem.	Stud.
☐ Wed. & Thurs. sessions (including PROCEEDINGS)	$40.00	$60.00	---	---
☐ Wed. & Thurs. sessions*	35.00	50.00	8.50	15.00
☐ Wed. 10/14 sessions only*	20.00	27.50	5.00	8.00
☐ Thurs. 10/15 sessions only*	20.00	27.50	5.00	8.00

*PROCEEDINGS not included in registration fee unless indicated.

☐ Reserve a copy of the PROCEEDINGS for me**.	5.00	10.00	5.00	10.00

**Above prices to conference registrants only. List price $12.50

☐ I also wish to attend "CRAM" courses as checked: ☐A ☐B ☐C ☐D

Additional fee, per course	10.00	12.50	‡‡	‡‡
‡‡ For graduate students only, per course			10.00	12.50

(CRAM Courses are available to Conference Registrants only, and will not be included in the PROCEEDINGS.)

☐ Please reserve luncheon tickets for me, at $5.50 per ticket.
(Luncheon tickets $6.00 each at the door, if space is available.)
☐ Wed., 10/14 ☐ Thurs., 10/15

☐ Check or money order enclosed. Please send me a signed receipt for expense accounting. (Make checks payable to Instrumentation Panorama 1970.)

☐ *Please bill me. I understand that my registration will not be confirmed until payment has been made.* ☐ *Please bill my company (mail bill to me).*

Signature _____ Date _____

☐ Send me information on Hotel Reservations.

☐ Send me information on LADIES' PROGRAM plans.

See instructions on reverse side.

ADVANCE PROGRAM and ADVANCE REGISTRATION FORM for INSTRUMENTATION PANORAMA 1970

IEEE Second Annual Conference on Instrumentation & Measurement

•

Technical Program By
N. Y. – North Jersey – L. I.
Joint Chapter
IEEE Group On
Instrumentation & Measurement

•

Sponsor
North Jersey Section IEEE

Cooperating North Jersey Groups
Communication Technology • Computers • Automatic Control • Power • Reliability • Microwave Theory & Techniques/Antennas & Propogation

8 MAJOR-TOPIC SESSIONS
32 TOP-FLIGHT PAPERS
4 VALUABLE "CRAM" COURSES
OTHER SPECIAL EVENTS

Significant Measurement Topics for Every Branch of the Electrical/Electronic art

October 14-15, 1970
Governor Morris Inn
Morristown, New Jersey

more . . .

IP-70 IEEE

TECHNICAL PROGRAM

WEDNESDAY, OCTOBER 14, 1970

Morning

Session I –
Computer-Aided Instrumentation for Everyman
1– Using Computer Graphics to Speed Network Design
2– Static and Dynamic Testing at the Card Level Under Computer Control
3– Interface Considerations in Digital Measurement & Control with Minicomputers
4– The Role of the Small "Dedicated" Computer in Industrial Instrumentation

Keynote Address (luncheon)
Dr. Thomas C. Winter, Jr., President's Council On Environmental Quality
New Instrumentation Challenges for Environmental Analysis and Control in the 1970's

Afternoon

Session II –
Designing "Hazard-Free" Instrumentation
1– Instrument Design, the Environment, & Electronic Product Safety
2– Safety Standards for Electrical Instrumentation
3– Ensuring The Safety of Instruments Used in Hospitals
4– Detection of Potential High Voltage Failures Through Corona Testing Techniques

Session III –
New Analog & Digital Transducers & Sensors
1– Servo Control of Arterial & Venous Blood Pressure in Anaesthesia
2– New Transducers for the Micro-G and Micro-PSI Domains
3– A Pressure Transducer with High-Resolution Digital Output
4– Water Quality Instrumentation For Continuous Pollution Monitoring

Evening

Cram Session A – Design of Active Filters
Cram Session B – Application of Memory Systems to Instrumentation

THURSDAY, OCTOBER 15, 1970

Morning

Session IV –
Data Communications for Acquisition & Computation
1– Optimal Design of Centralized Data-Communication Networks
2– Performance Measurement of Data Transmission Sets over Telephone Lines
3– Characterization of Troposcatter Channels by Impulse Measurement
4– Selecting the Class of Data Terminals Best Suited to a Specific Instrumentation System

Session V –
Modern Power-System Measurement Techniques
1– Operating Experience with a Large Digital Data Acquisition System
2– Automatic Reading of Watt-Hour Meters
3– The Effects of Distorted Wave Forms on Energy Measurement
4– Semi-Automatic Wattmeter and WattHour Meter Calibration

Luncheon Panel

Session VI –
Will Re-Educating Engineers Close the Gap?

Afternoon

Session VII –
Gigahertz Measurements – Hardware & Techniques
1– Optimization Techniques Applied to Hybrid Thick Film Amplifier Design
2– Printed Circuit Lumped-Constant Filmbrid Couplers – Design and Application
3– Measurement of Microwave Integrated Circuit Structures Developed Through Frequency Scaling
4– Single-Sweep Broadband Return-Loss & Attenuation Measurement

Session VIII –
What Cost Reliability in Instrumentation?
1– Evicting the "Reliability Gremlins" from Your Plant
2– The Cost of Operating a Parts-Analysis Operation
3– Calibration Longevity vs Cost of Purchase and Maintenance
4– The Costs of Unreliability in the Marketplace

Evening

Cram Session C – An Introduction to Time Sharing and Basic Programming
Cram Session D – Secondary-Standard Metrology

HOTEL ACCOMMODATIONS AVAILABLE
Request reservation form when you register.

SPECIAL "CRAM" COURSES
. . . . . Brush up – catch up – clear up.
. . . . . Subjects taught by experts.
. . . . . Lecture notes (not included in Proceedings).
. . . . . Attendance limited to 100 per course.

REGISTER TODAY
DO IT NOW

OTHER SPECIAL EVENTS
Industry Reception ● Technical Book Fair ● Ladies' Program

ATTENDANCE LIMITED TO 700
"First-come, first-served."

SCHEDULE OF EVENTS

TIME	WEDNESDAY OCTOBER 14, 1970	THURSDAY OCTOBER 15, 1970
8:00 A. M.	Registration	Registration
9:45 A. M.	Welcome Address	
10–12:00	Technical Session I	Technical Sessions IV, V
12:45 P.M.	Luncheon	Luncheon
1:30 P. M.	Keynote Address	Panel, Session VI
3–5:00 P. M.	Technical Sessions II, III	Technical Sessions VII, VIII
5–7:00 P. M.	Industry Reception and Dinner Hour	Technical Book Fair and Dinner Hour
7–10:00 P. M.	Cram Courses A, B	Cram Courses C, D

Detach here, fill out, and mail – no postage required unless mailed in envelope with check.

IEEE INSTRUMENTATION PANORAMA 1970
P. O. Box 365, Union, New Jersey 07083

Postage Will Be Paid By

BUSINESS REPLY MAIL
No Postage Required if Mailed in United States

FIRST CLASS
PERMIT NO. 626
UNION, N. J.

PLEASE POST ON BULLETIN BOARD — ALL GROUPS ARE OPEN TO THE PUBLIC

N. Y. Section, IEEE

Power and Industrial Div.

Metropolitan Section

ASME

EDUCATIONAL PROGRAM — FALL 1970

REVIEW STUDY GROUPS — FOR PROFESSIONAL ENGINEER EXAMINATIONS

This program is designed to prepare candidates for Professional Engineering License examinations in New York. 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 both Study Group No. 1 and No. 2. The New York State Board permits graduates of approved schools to take Parts I and II and qualify for "Engineer-in-Training." New York exams will be held in April and December. 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, Economic analysis, and Mathematics.

MONDAYS, Starting August 31, 1970, 6:15-8:45 P.M., 12 Sessions
Auditorium, 19th fl., Consolidated Edison Co., 4 Irving Place, N. Y. C.

Instructor: O. Ondra, 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 1, 1970, 6:30-9:00 P.M., 12 Sessions
Room 1701, Consolidated Edison Co., 4 Irving Place, N. Y. C.

Instructor: A. Paullow
Consolidated Edison Co.

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

Review for Engineering Economics Section of the N. Y. 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.

TUESDAYS, Starting September 1, 1970, 6:15-8:45 P.M., 12 Sessions
Auditorium, 19th fl., 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 September 2, 1970, 6:30-8:30 P.M., 12 Sessions
Room 1701, Consolidated Edison Co., 4 Irving Place, N. Y. C.

Instructor: M. Kurtz, P.E.

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, networks, impedance matching, bridges, coupled circuits, resonance, harmonics, transients, three-phase power, amplifiers and electronic circuits.

WEDNESDAYS, Starting September 2, 1970, 6:30-9:00 P.M., 12 Sessions
Room 1425, Consolidated Edison Co., 4 Irving Place, N. Y. C.

Instructors: L. E. Burnett, Consolidated Edison Co.
S. Sonsky, Queensborough Community College

REGISTRATION INFORMATION

GROUPS #	FEES	PAYABLE TO	MAIL TO
1, 3, 5	*$30 Members, IEEE, ASME, NYSSPE* *$40 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
2, 4	*$30 Members, IEEE & ASME only* *$40 all others*	"ASME METROPOLITAN SECTION"	*Clarence J. Owens,* Educational Comm. ASME, Metropolitan Section, Dept. of Hospitals, Bureau of Engineering & Maintenance 66 Leonard St., N. Y., N. Y. 10013 Phone: (212) 566-6940
6, 7, 8, 9	*$25 Members, IEEE, ASME, NYSSPE* *$35 all others*	"POWER & IND. GROUP, N. Y. SECTION IEEE"	*R. Cappelli,* Vice Chairman Educational Committee, IEEE Consolidated Edison Co., Rm. 1250-S 4 Irving Place, N. Y. C. 10003 Phone: (212) 460-4083
10	*$30 Members, IEEE, ASME, NYSSPE* *$40 all others*		

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

EDUCATIONAL PROGRA

STUDY GROUP NO. 6
NUCLEAR POWER PLANT DESIGN & ENVIRONMENTAL CONTROL — PART I

MONDAYS, 6:30 to 8:30 P.M.: Starting September 14, 1970

Consolidated Edison Co., Room 1425, 4 Irving Place, New York, N. Y.

Group Coordinator: *Tom Kelly, N. Y. Port Authority*
Tel. (212) 620-7503

Group Sponsor: *E. N. Mercouris, Gibbs & Hill, Inc.*
Tel. (212) 565-4300, Ext. 271

Principal Instructor: *F. D. Hutchinson, Gibbs & Hill, Inc.*

This series of lectures in three parts will take 1½ years to complete. Registration will be made for each part separately.

Parts I & II, covering the fundamentals and divided each one into two sections, are to be given by the same principal instructor. Part II is scheduled for spring 1971.

The Nuclear section and a portion of the Environmental control for both parts will be presented by F. D. Hutchinson while the balance of environmental control and plants are as shown.

Notes authored by E. N. Mercouris for both parts will be distributed at the beginning of each session to supplement the lectures. Part III will deal with the new generation of PWR, BWR, HTRG, LMFBR and zero-release plants with emphasis on the engineering, control, systems and construction for environmental management.

1. **September 14 - Introduction: Environment & Nuclear Power Plants** *Speaker to be announced*
   Intake Structures, Screens for winter & summer operations *William J. Cahill, Jr., V.P., Con Edison*

2. **September 21 - Basic Atomic Nuclear Structure** — Nuclide Chart, Nuclear Cross-Sections; Half-life, parent-daughter, Alpha, Beta, Gamma decays.

3. **September 28 - Environmental Law** — Review of federal and local standards on air, water & solid waste pollution. Legislative trends & regulatory bodies. *Speaker from NYC Environmental Agency*
   Monitoring programs & stations — Sampling, Geometry, frequency and techniques. Measuring instruments, analyzers and apparatus. Data collection, analysis and interpretation. *Speaker from NYC Environmental Agency*

4. **October 5 - PWR & BWR Power Plants** — Principles, processes, control and components. *E. N. Mercouris, Gibbs & Hill, Inc.*

5. **October 19 - Fission Process & Criticality** — Liquid drop model, Binding energy equation; delayed and prompt neutrons; sub, super and prompt criticality. Fission product poisoning; Zenon-135, Samarium-149, production, equilibrium, decay, burnout override.

6. **October 26 - Thermal Pollution** — Heat disposal, waste heat utilization and sewage treatment plants; cooling towers, water bodies, water management and total water treatment. Composition of effluents, CO, COD, BOD, & pH. *Frank Seels, Consulting Staff Engineer, Calgon Corp.*
   Water Pollution Control — Water Management and industrial wastes. *Speaker to be announced*

7. **November 2 - Environmental Control I** — Hydrology & discharge systems. *W. J. Burns, Manager, Environment Engineering, LILCO*
   Environmental Control II — Instruments and measurement techniques. *William H. Aaroe, Deputy Director Office of Radiation Control, NYC Dept. of Health*

8. **November 9 - Multiplication Factors** — Infinite and effective factors; resonance escape probability, thermal utilization, fast fission factor, reproduction factor; leakage factors.

9. **November 16 - Ocean Engineering** — Oceanography, Hydrology, limnology. *Speaker to be announced*
   Desalination Plants I — Dual purpose Nuclear Plants. *E. N. Mercouris, Gibbs & Hill, Inc.*

10. **November 23 - Reactivity Coefficients and Effects** — Negative, positive, dollars worth; temperature, void, fuel, depletion, power, pressure, doppler effect and core life coefficients; long term, chemical shim control, return time effects.

11. **November 30 - Water** — Water purity standards, protection of fish and wildlife, pollution prevention & control. Hearings of case histories. Review and assistance on construction plans and advice on procedures. *Speaker from Office of Counsel, NYS Dept. of Health*
    Air — Air pollution regulations & enforcement. Degree of pollution, emission standards. *Sidney Marlow, Director, Bureau of Air Quality Control NYS Dept. of Environmental Conservation*

12. **December 7 - Meteorology I** — Geology, Seismology, Terrestial ecology, Mathematical models & equations; particulates, gases, Radioactivity; Radiation direct & sky shine, downwind doses, and meteorological analyses.

Field Trips: **October 31 — Environmental Center**
November 14 — Marine Ecology Laboratory

STUDY GROUP NO. 7
BASICS OF ELECTRICAL SYSTEM PROTECTIVE DEVICES

TUESDAYS, 6:30 to 8:30 P.M., Starting September 15, 1970

Consolidated Edison Co., Room 1701, 4 Irving Place, New York, N. Y.

Group Coordinator: *R. Koestner, Bussmann Mfg. Div.*
Tel. (212) 267-1466

Instructor: *H. S. Orth, Director, MULTI-AMP Institute*

A basic group covering the principles of operation, application, selection and coordination of electrical protective devices in common use today. The group will include data on fuses, motor overload relays, molded case and low voltage power circuit breakers, and protective relays.

Normal life in the United States today depends on the uninterrupted flow of electric power. Proper selection, coordination, and operation of the electrical protective devices in a system can help guarantee this constant flow of electric power.

1. **September 15 - Introduction, Why Electrical Protection?**

2. **September 22 - Fuses and Molded Case Circuit Breakers** — Theory of operation, interpretation, time characteristics, maintenance techniques.

3. **September 29 - Low Voltage Power Circuit Breakers** — Theory of operation, interpretation, time characteristics, maintenance techniques.

4. **October 6 - Protective Relays, Overcurrent Relays** — Theory of operation, interpretation, time characteristics, maintenance techniques.

5. **October 13 - Protective Relays (continued), Undervoltage, Percentage Differential, Underfrequency Relays**

6. **October 20 - Motor Protection**

7. **October 27 - Short Circuit Calculations**

8. **November 17 - Guide Lines for Coordination, Selective Tripping**

9. **November 24 - Typical Coordination Problem**

10. **December 1 - Coordination Problem (continued) and Discussion**

IEEE
NORTH JERSEY SECTION
LECTURE SERIES
FALL 1970

INTRODUCTION TO DIGITAL COMPUTER DESIGN

A nine-week course for those who want to know about computers and be able to communicate with computer people; to receive an understanding of operations within a computer and an understanding of the significance of programming.

Starts October 14, 1970

Jersey Central/New Jersey Power & Light Company
Madison Avenue at Punch Bowl Road
Morristown, New Jersey

RELIABILITY – PART I

An eight-session course providing an introduction to the basic concepts and methods of electronic equipment reliability, not intended for the reliability specialist, but rather for someone seeking a survey of the reliability field.

Starts October 15, 1970

Bell Telephone Laboratories
Whippany Road
Whippany, New Jersey

ELECTRIC HEATING/COOLING

An eight-session survey course designed for all who are concerned with the problems and considerations involved in the design, application, and construction of buildings incorporating electric heating and cooling systems.

Starts October 27, 1970

Jersey Central/New Jersey Power & Light Company
Madison Avenue at Punch Bowl Road
Morristown, New Jersey

(See Details and Registration Forms on Following Pages)

IEEE NORTH JERSEY SECTION LECTURE SERIES–FALL, 1970

Introduction To Digital Computer Design

A nine-week course for those who want to know about computers and be able to communicate with computer people. To receive an understanding of operations within a computer and an understanding of the significance of programming.

October 14–NUMBER SYSTEMS, BOOLEAN ALGEBRA

October 21–LOGIC CIRCUITS: GATES, FLIP-FLOPS, NETWORKS

October 28–BOOLEAN SIMPLIFICATION, KARNAUGH MAPPING

November 4–COMPUTER ARITHMETIC, SIGNED NUMBER, BASIC ADDERS, HIGH SPEED ADDERS

November 11–MEMORIES: MAGNETIC AND SEMICONDUCTOR

November 18–COMPUTER ORGANIZATION

November 25–I/O CHANNELS: DIGITAL, A/D, D/A

December 2–SOFTWARE: MACHINE LANGUAGE PROGRAMMING, HIGH LEVEL LANGUAGES, OPERATING SYSTEMS

December 9–SUMMARY: COMMERCIALLY AVAILABLE COMPUTERS, TIME SHARING SYSTEMS

INSTRUCTOR: Mr. Charles Hunnicott, a member of the Technical Staff at Bell Telephone Laboratories and is presently associated with the design and analysis of large computer systems. He has a BSEE from Worcester Polytechnic Institute and an MSEE from Rensselaer Polytechnic Institute.

TIME: 7:00 P.M. to 9:00 P.M., Wednesdays, starting October 14, 1970, and ending December 9, 1970.

PLACE: Jersey Central/New Jersey Power & Light Company, Punch Bowl Room, Madison Avenue & Punchbowl Road, Morristown, New Jersey.

REGISTRATION FORM – INTRODUCTION TO DIGITAL COMPUTER DESIGN

Send to: *Mr. B. G. Geertsma*
Jersey Central/New Jersey Power & Light Company
Engineering Department-Substation
Madison Avenue at Punchbowl Road, Morristown, N. J. 07960
Phone: (201) 539-6111, Ext. 513

Name..... Tech. Society.....

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

Business Address..... Phone.....

Home Address..... Phone.....

Check enclosed Member: $53.00..... $58.00 after October 1.....
Non-Member: $63.00..... $68.00 after October 1.....

Please make checks payable to: North Jersey Section IEEE.

IEEE NORTH JERSEY SECTION LECTURE SERIES—FALL, 1970

Reliability — Part I

This course will provide an introduction to the basic concepts and methods of electronic equipment reliability. It is not intended for the reliability specialist, but rather for someone seeking a survey of the reliability field. Highlights of the various listed topics will be presented and references given for additional study. A general engineering background is the only prerequisite.

October 15—PRACTICE OF RELIABILITY—Reliability concepts, factors, and their application
Speaker: G. H. Ebel, Singer-General Precision

October 22—PROBABILITY BASICS—Probability principles pertinent to reliability problems.
Speaker: K. Grace, Bell Telephone Laboratories
FAILURE DISTRIBUTIONS—Meaning and physical interpretation of failure distributions.
RELIABILITY OBJECTIVES—Establishment and interpretation of reliability objectives.
Speaker: S. J. Amster, Bell Telephone Laboratories

October 29—COMPONENT PART RELIABILITY—Time dependent properties of active and passive electronic component parts, their specification, and failure mechanisms.
Speakers: R. C. Winans and M. C. Wooley, Bell Telephone Laboratories

November 5—FAILURE ANALYSIS—What can be learned by failure analysis and procedures involved.
Speaker: M. C. Wooley, Bell Telephone Laboratories
ELECTRONIC CIRCUIT RELIABILITY—Circuit stresses, margins, equipment design and their effect on reliability.
Speaker: R. C. Winans, Bell Telephone Laboratories

November 12—ELECTRONIC CIRCUIT RELIABILITY (Cont'd.)
Speaker: R. C. Winans, Bell Telephone Laboratories
INTEGRATED CIRCUITS—Reliability characteristics of integrated circuits, failure modes and mechanisms, screening tests.
Speaker: G. H. Ebel, Singer-General Precision

November 19—MECHANICAL RELIABILITY AND ENVIRONMENTAL EFFECTS—Mechanical aspects of electronic parts and equipment's associated failure tendencies, achieving equipment reliability in different environments.
Speaker: R. Haiken, Consultant
RELIABILITY AND MAINTENANCE PARAMETER ESTIMATION—Failure rate and maintenance time estimation based on experience and design considerations.
Speaker: G. L. Hetzel, Bell Telephone Laboratories

December 3—RELIABILITY AND MAINTENANCE PARAMETER ESTIMATION (Cont'd.)
Speaker: G. L. Hetzel, Bell Telephone Laboratories
FAULT PATTERN IN EQUIPMENT—Failure modes and effects analysis as related to equipment reliability and maintenance.
Speaker: F. A. Mendez, Northern Precision Laboratories

December 10—MEASURES OF EFFECTIVENESS—Ways in which time dependent properties of systems can be expressed.
Speaker: K. Grace, Bell Telephone Laboratories
MULTIFUNCTIONAL SYSTEMS—Analysis of systems and equipment groups which perform several functions.
Speaker: S. J. Amster, Bell Telephone Laboratories

Reference Text: ARINC Research Corporation (W. H. von Alven) "Reliability Engineering," Prentice-Hall 1964.

Spring 1971 — RELIABILITY — PART II — Further development of selected topics from first semester based on class interest. Also, additional topics might be included such as reliability aspects of redundancy, large scale integration (LSI), connections, etc.

TIME: 7:00-9:00 P.M. Thursday evenings starting October 15, 1970 and ending December 10, 1970.
PLACE: Room 1H-009, Bell Telephone Laboratory, Whippany Rd., Whippany, N. J.
INFORMATION: For additional information contact K. Grace, Bell Telephone Laboratory, Inc., Whippany Road, Whippany, N. J. 07981. Phone: (201) 386-6030.

REGISTRATION FORM — RELIABILITY — PART I

Send to: *Mr. J. E. Schmidt, Automatic Switch Co., 6 Watsessing Ave., Bloomfield, N. J. 07003*

Name..... Tech. Society.....

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

Business Address..... Phone.....

Home Address..... Phone.....

Check or Money Order Enclosed: ☐ Member-$59.00; Registration prior to October 15 - $54.00
☐ Non-Member-$69.00; Registration prior to October 15 - $64.00

Please make check or money order payable to: North Jersey Section IEEE.

IEEE NORTH JERSEY SECTION LECTURE SERIES—FALL, 1970

Electric Heating/Cooling

This eight-session survey course is designed for all who are concerned with the problems and considerations involved in the design, application, and construction of buildings incorporating electric heating and cooling systems. Men who are experts in design, materials, and equipment for electric heating and cooling will be our speakers. The course will be beneficial to engineers, architects, contractors, and others who have an interest in this field.

October 27—FUNDAMENTALS OF COMFORT—Body heat generation and heat loss. Comfort vs. discomfort. Space requirements for comfort.
Electric Heating/Cooling Consultant

November 3—CONSERVING THE INTERNAL GAINS—Types of internal heat gains. Effect of internal gains on heating loads. Heating with light. Designing for heat recovery.
Electric Heating/Cooling Consultant

November 10—ELECTRIC HEATING/COOLING METHODS—Heat transfer principles. Types of in-space electric heating systems. Typical performance of in-space electric heating systems. Central unit heating systems.
Electric Heating/Cooling Consultant

November 17—CONTROL OF ELECTRIC HEATING/COOLING METHODS—Line voltage thermostats. Low voltage thermostats. Solid-state controls. Control of central unit heating systems.
Electric Heating/Cooling Consultant

November 24—RESIDENTIAL BUILDINGS—Types of insulation. Insulation requirements. Walls, floors, roofs and basements. Vapor barriers. Glazing. Control of infiltration losses. Heat loss calculations. Equipment sizing.
Arthur Johnson, Certainteed/St Gobain Insulation Corp.

December 1—COMMERCIAL BUILDINGS—Typical wall and roof constructions. Insulation applications. Control of solar loads. Air infiltration and ventilation. Heat-loss and heat-gain calculations.
Thomas Beers, Consulting Engineer

December 8—ELECTRIC HEAT FOR LARGE BUILDINGS—Heat recovery. Heat storage. Heat by light. Simultaneous Heat-Pumps. The Three-Pipe System. Decentralized unitary systems. Special applications. The pros and cons of on-site generation. Advantages of an all-electric installation.
Thomas Beers, Consulting Engineer

December 15—THE ELECTRIC HEAT-PUMP—Residential heat-pump units. Commercial heat-pumps. The economics of heat-pump applications.
Speaker from Lennox Industries, Inc.

TIME: 7:00-9:00 P.M. Tuesday nights, starting October 27, 1970 and concluding December 15, 1970

PLACE: Jersey Central/New Jersey Power and Light Co., General Operating Headquarters, Madison Avenue at Punch Bowl Road, (Rt. 24) Morristown, New Jersey, Punch Bowl Room

FEE: $40.00 to members (IEEE,ASME, NJSSPE, etc.), $50.00 to non-members. $5.00 discount for registrations received prior to the first session.

SPONSORS: P. E. Watson, Jersey Central/New Jersey Power and Light Co. Phone (201) 539-6111, Ext. 511; J. C. Gass, Allis-Chalmers, Phone (201) 687-3700, Ext. 28.

REGISTRATION FORM—ELECTRIC HEATING/COOLING COURSE

Send to: *Mr. P. E. Watson, Jersey Central/New Jersey Power and Light Co.*
Madison Avenue at Punch Bowl Road, Morristown, N. J. 07960

Name..... Tech. Society.....

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

Business Address..... Phone.....

Home Address..... Phone.....

Check Enclosed: Member: $35.00.....; $40.00 after October 20.....
Non-Member: $45.00.....; $50.00 after October 20.....

Make checks payable to: North Jersey Section IEEE.

. GROUPS ARE OPEN TO THE PUBLIC

M — Special Study Groups FALL 1970

STUDY GROUP NO. 8
ADVANCED ELECTRICAL FACILITY DESIGN

WEDNESDAYS, 6:30 to 8:30 P.M.: Starting September 9, 1970

Union Carbide Bldg., 270 Park Avenue
3rd Fl., Multi-Purpose Room, New York, N. Y.

Group Coordinator: *M. Isaacs, P.E., Ammann & Whitney*
Tel. (212) 924-8282
Senior Instructor: *H. Walcoff, P.E., Urban Development Corp.*
Instructor: *J. Tambasco, P.E., General Services Adm.*

This course will be an extension of the studies presented from 1967 to the spring of 1970. The classroom lectures will be accelerated instruction directed toward actual design of electrical systems. Homework is an essential part of this study program. Satisfactory completion of the outside study assignments will be a major consideration in the issue of Certificates of Completion.

1. **September 9 - Introduction** — Review of General Design Considerations, planning and procedures. Homework: Prepare a partial check list and outline or index a job plan book.

2. **September 16 - Load Study** — Determine connected loads, their locations, characteristics and reliability requirements. Determine load groupings. Calculate demands of individual buildings, load factors and coincidental demands. Review of the coordination with the utility. Briefly review the factors in applying standby power sources and control. Homework: Prepare load study forms and indicate how to use them.

3. **September 23 - Voltage Considerations** — Determine equipment characteristics and tabulate. Develop voltage regulation criteria. Selection of system and subsystem voltages. Homework: Write a report on voltage regulation corrective measures for a hypothetical project of the students own selection.

4. **September 30 - Fault Currents** — Review of methods of calculating fault currents, using data from a hypothetical utility, manufacturers publications and the IEEE publication 141 (Red Book). Homework: Using a class furnished one-line diagram, develop an impedance diagram and determine the fault currents.

5. **October 7 - System Protection** — An introduction to coordination of protective devices. The selection and application of fuses, circuit breakers and relays. Homework: Select and coordinate protective devices for class assigned subsystem.

6. **October 14 - Grounding** — The purposes for grounding and grounding criteria. Grounding methods and tests. No homework assignment. Review of prior lectures.

7. **October 21 - Discussion and Test** — Round table discussion for one hour. Discussion will be led by students. Second hour: Midterm test on a problem based on a preceding lecture. No homework.

8. **October 28 - Class Problem** — Presentation of a class problem involving an industrial complex of one manufacturing building, two warehouses, an office building, a plant and vehicle maintenance building and a standby engine driven generator. Homework: Develop a plan for the design procedures. Indicate the starting point and the planned progress.

9. **November 4 - Coordination** — Develop the essentials of the criteria for the class problem. Review the major points of Design Team Coordination and steps to be taken to coordinate with the utility. Homework: Develop the load study.

10. **November 18 - Voltage Considerations** — Review of voltage considerations, ratings, acceptable variations, regulation and corrective measures. Homework: Select system and subsystem voltages for the class problem.

11. **December 2 - Distribution System** — Select the distribution system for the class problem. Homework: Develop one-line diagram, apply coordinated protective devices.

12. **December 9 - Conclusion** — Class submits individually completed design of the electrical system developed for the class problem. Discussion of randomly selected solutions.

STUDY GROUP NO. 9
ADVANCED COMPUTER TECHNIQUES I

THURSDAYS, 6:30 to 8:30 P.M.: Starting September 10, 1970

Consolidated Edison Co., Room 1701, 4 Irving Place, New York, N. Y.

Group Coordinator: *J. Tambasco, General Service Admin.*
Tel. (212) 264-4226
Group Sponsor: *G. Weitz, American Elec. Power*
Tel. (212) 422-4800, Ext. 782
Group Instructor: *M. Gershinsky, Grumman Aerospace Corp.*

This is the first of a two-part series concerning numerical techniques and special computer applications. Both the mathematical theory and the computer techniques will be covered. The study series is designed for the interested student who is familiar with FORTRAN and who would like to learn more powerful techniques for problem solving.

1. **September 10 - Introduction to Computer Operations** — Fortran IV Review; Number representation in computers; Errors--roundoff, truncation, propagation; Power series calculation of functions.

2. **September 17 - Solution of Nonlinear Algebraic Equations** — Roots of polynomial and transcendental equations by iterative methods of bisection and false position, complex roots, applications to simultaneous equations.

3. **September 24 - Matrices, Determinants, and Linear Simultaneous Equations** — Basic matrix algebra and FORTRAN subroutines for matrix manipulations, evaluation of determinants, solution of linear simultaneous equations by Gauss elimination and by Gauss-Seidel iteration.

4. **October 8 - Numerical Integration and Differentiation** — Integration by trapezoidal and Simpson's method; Romberg integration, Gauss quadrature, Lagrangian differentiation formulas.

5. **October 15 - Introduction to Linear Programming and Applications**

6. **October 22 - Elementary Statistics** — Analysis of data, probability distributions, calculation of means and variances, Monte Carlo techniques, regression and analysis of variance, prediction techniques.

7. **October 29 - Curve-fitting and Data Smoothing** — Least-squares curve fitting using polynomials and transcendental functions, various polynomial approximation techniques, and smoothing of data.

8. **November 5 - Ordinary Differential Equations** — Description of Euler's methods, Milne's method, Runge-Kutta methods, solution of second and higher-order equations.

9. **November 12 - Interpolation and Approximation Polynomials** — The interpolating polynomial and Lagrange and Aitken's forms; Finite and divided differences, Newton's difference formulas.

10. **November 19 - Queuing Theory and Game Theory**

PLEASE POST ON BULLETIN BOARD — ALL GROUPS ARE OPEN TO THE PUBLIC

INDIVIDUAL IMPROVEMENT STUDY GROUP

N. Y. Section, IEEE

Power and Industrial Div.

EDUCATIONAL PROGRAM — FALL 1970

Metropolitan Section

ASME

STUDY GROUP NO. 10

BUSINESS MANAGEMENT FOR ENGINEERS

THURSDAYS, 6:30 to 8:30 P.M. - Starting September 10, 1970

Consolidated Edison Company, Room 1425
4 Irving Place, New York, N. Y.

Course Coordinator: V. Kotecha, Con Edison Company
Telephone: (212) 460-5147

The course will be given by men from top industries and outstanding academic institutions. It consists of a series of lectures on Business Administration designed to give the engineer a better understanding of corporate management.

1. **September 10 - Marketing and Sales Planning**
   Speaker: Carl Miller, Manager, Combustion Engineering, Inc.

2. **September 17 - Interpreting Corporate Financial Statements**
   Speaker: John Dyment, Arthur Lounge and Company

3. **September 24 - Personnel Administration** - Policy, Placement, Communications and Benefit Programs
   Speaker: Robert Dodds, Personnel Manager, Gibbs and Hill, Inc.

4. **October 1 - Contract Law for Engineers**
   Speaker: Glen H. Abplanalp, Havens & Emerson

5. **October 8 - Factors Used in Extending Credit to Business**
   Speaker: Richard Koehne, Vice President, Chemical Bank, N. Y. Trust

6. **October 15 - Human Relationship** - Psychology of Personnel and Labor-Management Relations
   Speaker: Professor J. H. Metzler, Newark College of Engineering

7. **October 22 - Motivation of Employees** - Participative Management, Work Procedures, Incentives, Communication and Recognition
   Speaker: Professor M. Rucker, Newark College of Engineering

8. **October 29 - Introduction to Organization and Management of Corporations**
   Speaker: J. P. Wurzler, General Training Director, N. Y. Telephone Company

9. **November 5 - Labor Relations** - Collective Bargaining
   Speaker: Professor S. Ranhand, Phd., C.P.A., City College of New York

10. **November 12 - Planning Future Strategy** - Planning for Present Operation, Growth and Change and Implementing the Decision.
    Speaker: S. Milberk, Marcom Inc., New York

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

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

Electronic Industry: Two Major Problems

The PMP Group (G-21) will hold a meeting on October 8, covering the topic of "The Electronics Industry—Conversion and the Import Problem."

About the Talk

Currently, the electronics industry is faced with two major problems: (1) a reduction in military electronics demands, and (2) rising competition from imports. This has a serious impact upon technical manpower. Possible solutions to cope with this situation are proposed and discussed. Their adoption could result in ultimate improvement of the entire industry.

About the Speaker

John E. Ullmann is professor of management and chairman of the Department of Management, Marketing and Business Statistics at Hofstra University in Hempstead, New York. He received a B.S. degree in mechanical and civil engineering from the University of London in 1948 and the M.S. and Ph.D. in industrial engineering from Columbia University in 1951 and 1959. He has had diversified experience in industry as well as in the academic world, and has served as a consultant to government and industry on a variety of economic and technical areas. An author of many papers, Dr. Ullmann is well qualified to speak on this topic.

Time: Thursday, October 8; 8:00 P.M.
Place: Main Auditorium, Bell Telephone Labs, Murray Hill, N. J.
Pre-Meeting Dinner: 6:00 P.M., Wally's Tavern on the Hill, Watchung, N. J.
Dinner Reservations: Call H. Feibus, Office (201) 386-5563, Home (201) 464-0228.

How Electronics Helps Fix Your Auto

The New York Section of the Power and Industrial Division is sponsoring an inspection tour to an Automotive Diagnostic Clinic at Lear Siegler, Inc., Paramus, N. J., on Thursday, October 22, 1970. The trip which starts at 7:00 P.M. will include a descriptive film and a tour through the Automotive Clinic. The trip is limited to members only and you must arrange for your own transportation.

For tickets and directions contact: Mr. Andy Montano, Public Service Electric & Gas Co., 80 Park Place, Newark, N. J. 07102. Phone: (201) 622-7000, Ext. 3154.

All requests must be received by October 7, and must be accompanied by a stamped, self-addressed envelope.

Tour of Electronics Laboratories At Fort Monmouth

The New York, North Jersey, and Long Island Joint Chapter on Instrumentation & Measurement will sponsor a tour of USAECOM Laboratories, Fort Monmouth, N. J. on October 17, at 10:00 A.M.

A short film, *Eyes, Ears, and Voice of Fighting Men*, which shows accomplishments of the laboratories and how they apply to the needs of the U.S. Army, will introduce the tour.

Electronics Components Laboratory

Visitors to the Electronics Components Laboratory will see the frequency standards room where atomic standards control frequencies to such a degree of stability that a driven clock would not vary more than one second in 300 years, and all stages in the manufacture of a crystal unit (from the cutting of raw quartz with diamond saws, through plating, to oscillation of the finished device) in the Laboratory's crystal processing facility.

Communications and ADP Laboratory

Present and future laser communications systems are on display and will be discussed briefly. A demonstration of a helium-neon laser communications system illustrates the major components of a laser communications system. Basic problems involved in automatic pattern classification will be discussed also and USAECOM's adaptive learning facility demonstrated. This facility uses a pre-processor to filter and extract pertinent object signature data directly from a raw data field. Signature data are then classified by adaptive-learning networks that are pretrained on similar but not necessarily identical data.

Avionics Laboratory

Cockpit mockups of the Utility Tactical Transport Aircraft System (UTTAS) and the Advanced Army Aircraft Instrumentation System (AAAIS) will be used to demonstrate new cockpit instrumentation techniques and displays, including the Head-up Display, Electronic Flight Director, and Map Display System currently under evaluation. An animated display of the Tactical Avionics System Simulator Facility will be used to show the mission and capabilities of the facility. Examples of simulation and the operation of the equipment in the facility will be discussed.

Institute of Exploratory Research

Scientific instruments used to support research on the characterization and structure-property relationships of electronics, optical, and magnetic materials are discussed and demonstrated.

Registration

The nature of this tour makes it necessary to limit the attendance to 100 college student registrants. For information and reservations, contact Irving Levine, USAECOM, Attn: AMSEL-VL-N, Avionics Laboratory, Fort Monmouth, N. J. 07703, Phone (201) 535-1006; or Karl Sommer, Consolidated Edison Company, 4 Irving Place, New York, N. Y. 10003, Phone (212) 460-6176.

Time: Saturday, October 17; 10:00 A.M.
Place: USAECOM Laboratories, Fort Monmouth, N. J.

Charge Coupled Semiconductor Devices

Mr. G. E. Smith will give a talk on "Charge Coupled Devices" at the September 24 meeting of the Electron Devices Group.

About the Talk

A new semiconductor device concept will be described and experimental results presented which demonstrate feasibility. The basic scheme is to store minority carriers (or their absence) in a spatially defined potential well at the surface of a semiconductor and to move the charge (representing information) over the surface of the semiconductor by moving the potential minima. A physical realization of the device has been achieved using closely spaced MOS capacitors on an n-type silicon substrate.

About the Speaker

George E. Smith was born in White Plains, New York on May 10, 1930. He received a B.A. in Physics from the University of Pennsylvania in 1955 and an M.S. and Ph.D. in Physics from the University of Chicago in 1956 and 1959, respectively. He joined Bell Telephone Laboratories in 1959 and initially studied the electrical properties and band structure of semimetals. At present, he is Head of the Interface Device Department and his primary interests are in new semiconductor devices and in the device physics of semiconductor insulator interfaces.

Time: Thursday, September 24; 8:00 P.M.
Place: GT&E, Bayside, N. Y.

A/D Conversion Today

The New York, North Jersey and Long Island Joint Chapter on Instrumentation & Measurements will present an all-day seminar on Analog to Digital Conversion Today with emphasis on specifications, limitations and technical and economic trade-offs in instrument and system applications.

The seminar will be held at Newark College of Engineering, Newark, N. J. on November 10, 1970 from 9:00 A.M. to 4:00 P.M. Members fee is $10 and non-members $15. The detailed agenda and speakers will be published in October.

Time: Tuesday, November 10; 9:00 A.M.
Place: NCE, Newark, N. J.

Report from: YOUR SECTION CHAIRMAN

The North Jersey Section is faced with a serious budget deficit for the 1970-1971 term. The programs we have planned for the year can be maintained only by drawing on our savings account to offset this anticipated deficit. Obviously, if this condition were to continue, our treasury would be drained to the point where some drastic action would be required.

For this reason, I feel it is necessary for your elected officers to attempt to strengthen our income position so that we will be able to reduce or hopefully eliminate the projected deficit. Accordingly, I have reviewed the budget in an effort to determine the best means of accomplishing this objective. It seems logical to assume that in order to effect any significant change in income or expenses, our efforts should be directed to the largest items in both of these categories. Under income, we have educational activities and membership rebates. For expenses, the biggest single cost is the operation of the Newsletter.

For several years we have attempted to obtain better participation from the Group Chapters on our Education Committee. Requests for volunteers have been ineffectual even though participation is both desirable and essential. To fill that gap I have appointed each of the Group Chapter Vice-Chairmen as active members of the Education Committee. This was not done as a punitive measure but rather to spread the base of our education effort.

One of the major sources of income to our Section is the rebate from your membership dues which is returned from headquarters to help finance your Section activities. In order to strengthen our membership activities, I am requesting that each Membership Group and Correspondence Secretary work with Maitland McLarin on a two-pronged attack to augment our membership. This dual endeavor will require contacting ex-members of IEEE to determine their reasons for dropping out in addition to providing application forms to those in attendance at group meetings. Each of us, whether actively involved in committee work or merely as members of the Institute, should consider himself as an unofficial member of the Membership Committee. We should become familiar with the application forms and be prepared to recommend the names of members who can serve as sponsors for prospective applicants so that we can make it easier for qualified engineers to join.

You are undoubtedly aware that there has been a general decrease in advertising in our Newsletter. We of the Executive Committee believe that the Newsletter in its present form provides a necessary and important means of communication between our Executive Committee and the individual member of the Section. In order to continue its existing format we have requested that the Newsletter staff limit the editorial content to a maximum of eight pages unless there is a substantial increase in the amount of advertising to sustain the additional publication expense. We recognize that it has been difficult for Mike Perugini, our Business Editor, to obtain additional advertising revenue. I have therefore requested members of the Executive Committee to contact advertising managers in their own company in an attempt to recruit ads on a personal basis. I would like each member of the Section to make the same effort within his own organization. It should be of some help in this endeavor to point out that the Newsletter goes to approximately 5,700 electrical and electronic engineers in the North Jersey area, many of whom are affiliated with industry-related companies which could represent potential markets for advertised products. Student members in Colleges and Universities are included in this total number of recipients.

We have also asked that each of the Group Chapter and Standing Committees hold the line on expenses where this can be done without impairing their present program. It would be self-defeating to cut expenses to the point where it would require a reduction in group or committee activities.

No task is ever accomplished without some attendant problems. Those which I have outlined are by no means insurmountable. With your cooperation, your Executive Committee looks forward to a successful year in the production of programs which will be of vital interest to you as a member of the North Jersey Section.

You have probably noticed elsewhere in this issue that the Section is again sponsoring our Second Symposium on Metering, to be held in October at the Governor Morris Inn in Morristown. Every effort is being extended to make this an interesting and vital exchange of information on the present "State of the Art" to all members, as well as non-members, who have an interest in this important subject. It is our belief that the Symposium Committee has put together a program which you cannot afford to miss.

H. E. Blaicher, Jr., Chairman, North Jersey Section

P&I Groups Slate Meets

The Power and Industrial Division of the New York Section has set meeting nights for the five Technical Discussion Groups to be presented during the coming year. Members, prospective members, and other engineers are invited to attend and participate in any of the Technical Discussion Groups. Dates are:

Industrial & Commercial Power Systems
Thursday, October 8, 1970
Thursday, December 3, 1970
Tuesday, February 9, 1971
Tuesday, April 20, 1971

Insulated Conductors
Wednesday, October 7, 1970
Wednesday, November 4, 1970
Wednesday, March 3, 1971
Wednesday, April 14, 1971

Generation
Thursday, November 19, 1970
Tuesday, March 23, 1971

Substation
Tuesday, October 6, 1970
Tuesday, November 24, 1970
Thursday, February 25, 1971
Tuesday, April 6, 1971

Transmission & Distribution
Wednesday, October 14, 1970
Wednesday, December 2, 1970
Wednesday, February 17, 1971
Wednesday, March 31, 1971

Group Sponsors will be pleased to include your name on their mailing lists for advice on meetings and discussion topics. Use the form below.

.....

Mail To:
Mr. Peter Jackson
c/o Jersey Central & N. J.
Power & Light Co.
Madison Ave. at Punch Bowl Road
Morristown, N. J. 07960

Please add my name to mailing list for:
....Industrial & Commercial Power Systems
....Transmission & Distribution
....Generation
....Substation
....Insulated Conductors

Name.....

Company.....

Address.....

.....Zip.....

COMMUNICATIONS TECHNOLOGY GROUP

Switching Systems and Their Applications

The objective of this three-part lecture series is to provide a general understanding of telephone switching systems and how they are applied to meet varying local requirements. The fall series, Part I, will cover the most common types of electromechanical switching systems which are in service in North America. A brief review of switching systems used in other countries will also be presented. In addition, traffic theory applied to telephone practice and techniques used to determine where switching centers should be located will be discussed.

The winter series, Part II, will go into considerable detail regarding electronic control of switching systems. Electronic switching systems are being installed in ever increasing numbers. Manufacturers throughout the world are working on new systems which take advantage of the speed possible with electronic control. Part II will provide for a basic understanding of electronic control.

The spring series, Part III, will describe switching systems utilizing electronic techniques. Information on Part III will be available in future issues of this publication.

PART I – FALL SERIES

October 6 – "History of Switching," A. N. Daudelin, Jr., Bell Telephone Laboratories
October 13 – "Step-by-Step and all Relay Systems," J. J. Grumblatt, GT&E
October 20 – "Panel, No. 1 and No. 5, Crossbar Systems," Speaker to be announced
October 27 – "International Systems," Speaker to be announced
November 10 – "Traffic Theory," B. J. Cole, GT&E
November 17 – "Locating Switching Centers by Computer Techniques," J. P. Rooney, N. Y. Telephone Company

Included as part of the registration fee for those taking all three parts of the lecture series is a textbook entitled *Switching Systems.*

Other individuals desiring to acquire the textbook may purchase a copy at the lecture hall. Note: Since orders for the textbook are required in advance only those who indicate on the enrollment form their desire to purchase a copy will be provided with one.

Fee: Members - $45.00 for full three-part series; $20.00 for each individual part.
Non-Members - $60.00 for full three-part series; $35.00 for each individual part.
Location: Little Theater, New York Telephone Company, 140 West Street, N. Y. C.
Time: 6:30-8:30 P.M.

For registration and additional information write or phone Mr. Alexander F. Karman, RCA Frequency Bureau, 60 Broad Street, Room 730, New York, N. Y. 10004. Phone: (212) 586-3000, Ext. RR 3002.

.....

REGISTRATION FORM – SWITCHING SYSTEMS AND THEIR APPLICATION

Send to: Mr. A. F. Karman, RCA Frequency Bureau,
60 Broad Street, Room 730, New York, N. Y. 10004

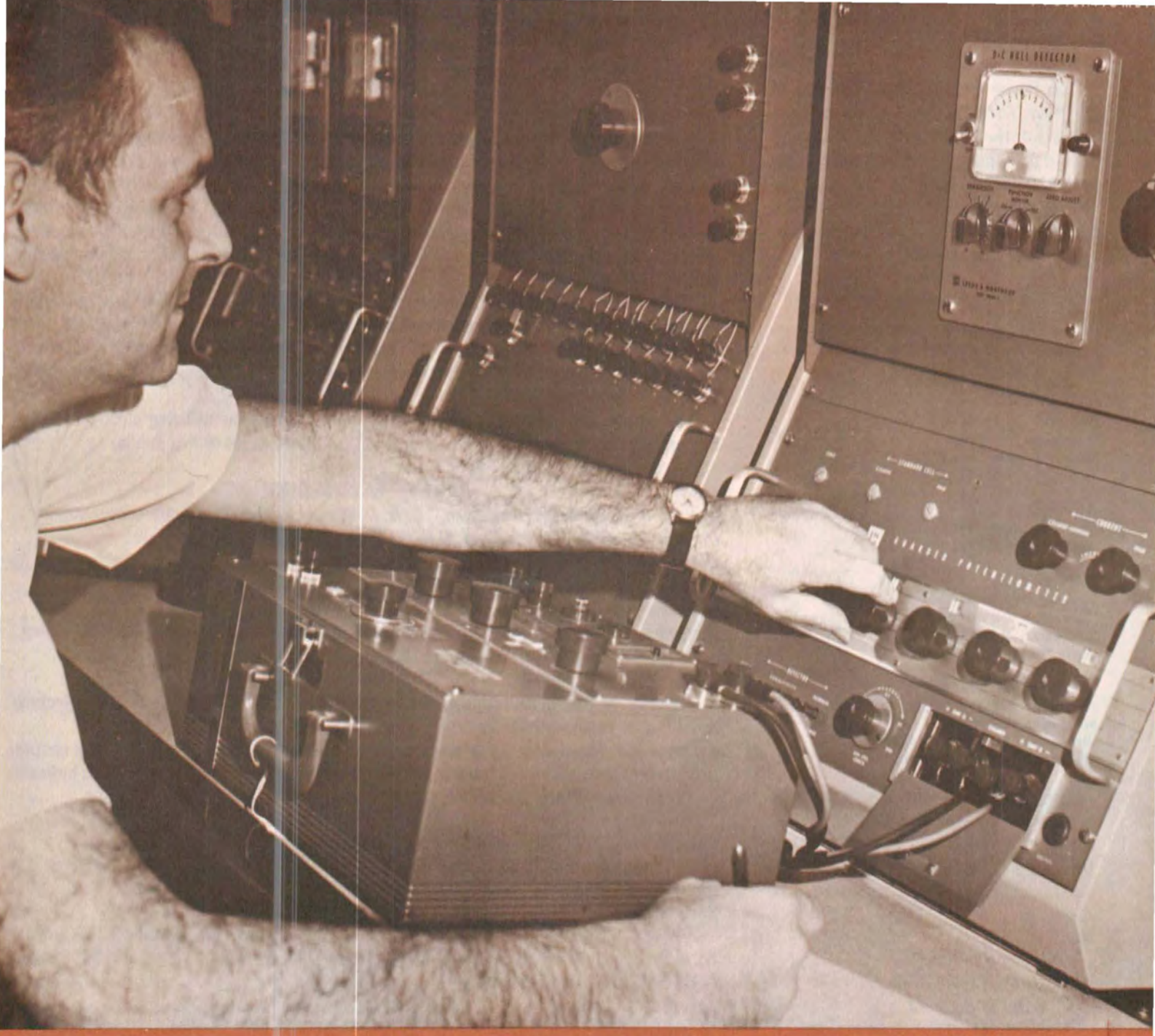
Name.....

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

Business Address.....Phone.....

Home Address.....Phone.....

Check of Money Order Enclosed: $.....
Member: $45.00 Complete Series Non-Member: $60.00 Complete Series
$20.00 Per Lecture $35.00 Per Lecture
Partial Enrollment (Circle Part Desired) Part I II III .....Want Textbook
Make check or money order payable to Comm Tech Group, N. Y. Section IEEE.



The IEEE
Newsletter
The Magazine of the North Jersey Section

Public Service Testing Laboratory Field Trip
Wednesday, September 16, 7:00 P.M.
200 Boyden Avenue, Maplewood, N. J.

(Call 398-5524 for details)