



The IEEE

# Newsletter

## IEEE HONORS 112 ENGINEERS WITH ELECTION TO FELLOW GRADE FIVE FROM NORTH JERSEY ARE ELECTED

The Institute of Electrical and Electronic Engineers, Inc. (IEEE), has elected 112 of its most distinguished members to the grade of Fellow, the Institute's highest membership grade. This honor, recognizing unusual professional distinction, is conferred only by invitation of the Board of Directors.

In announcing the names of the new Fellows, IEEE President Arthur Stern noted that each person had been elected because they had demonstrated outstanding and extraordinary qualifications and experience as well as having made important individual contributions to the profession. These contributions ranged from satellite communications, data communications, and biomedical engineering to the development of the new electric power controls.

Since they live and work in so many countries as well as the United States, those who have received the distinction of Fellow grade reflect the world-wide scope of the Institute, the world's largest professional engineering society.

Each new Fellow, whose election became effective on January 1, 1976, receives a certificate and a pin. They also receive special recognition during the Institute's Electro meeting in Boston and at our Section's Annual Dinner Dance (see article on Dance in this issue).

## NORTH JERSEY SECTION ANNUAL FELLOWS DINNER DANCE President of NJIT to Speak

Remember the big bash last March? It's time to do it again. Get together with your professional associates for a night out of food and music.

This year's dance is being held at the Governor Morris Inn on Saturday, March 6. Cocktail hour being at 6 PM and dinner starts at 7 PM.

The festivities include honoring the five newly elected Fellows of the North Jersey Section and a talk by the President of the New Jersey Institute of Technology, Dr. Paul M. Newell, Jr. His talk is entitled "Projections, Politics and Progress in Engineering Education Now and Tomorrow." It should prove to be very informative — don't miss it.

One important change from last year that must be mentioned: We have a band — a large improvement over last year. Even with the poor band last year the place was packed-so get your reservations in right away and bring a friend.

See Map on Page 2

### FELLOWS NIGHT (DINNER DANCE)

North Jersey Section IEEE

Saturday, March 6, 1976

7:00 PM (Cocktail hour 6:00 to 7:00)

Dancing 9:00 PM to 1:00 AM

Governor Morris Inn

Morristown, N. J.

Dinner Speaker: Dr. Paul M. Newell, Jr.  
President, New Jersey Institute of Technology

Use the form below for reservations enclosing a stamped, self-addressed envelope. Reservations received after February 16 or without an enclosed envelope will be held at the door along with telephoned reservations by calling (201) 564-7092 or (201) 386-1922.

J. F. Kampschoer  
Bell Laboratories  
6 Corporate Place  
Piscataway, N. J. 08854

Please forward \_\_\_\_\_ tickets at \$15.00 each (make checks payable to North Jersey Section IEEE) to:

Name \_\_\_\_\_

Address \_\_\_\_\_

I would like to share a table (seating \_\_\_\_\_) with the following:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## TUTORIAL SEMINAR SERIES

Thursdays, 7:00 to 9:00 PM, starting Feb. 26, 1976, Punchbowl Room, Jersey Central Power & Light Co., Madison Ave. at Punchbowl Road, Morristown, N. J.

Eminent speakers have been selected for each topic covered. Each week's session will serve as an independent topic.

Section I consists of 4 weeks of current information by recognized scientists in the field of integrated circuits.

Section II consists of 4 weeks of excellent presentations of state-of-the-art technology on four very current topics.

### Section I - Integrated Circuits

Feb. 26, 1976 - "EVOLUTION OF MOS TRANSISTOR AND ASSOCIATED DEVICES" - Dr. Dawon Kahng, FELLOW IEEE.

The MOS device in its many forms represents an exceptionally large usage factor in I.C.s currently and in the future. Evolution and principles of operation will be covered. Dr. Kahng is supervisor of the Device Physics Group at BTL.

March 4 - "CHARGE COUPLED DEVICES" - Dr. George Smith, FELLOW IEEE

Dr. George Smith, head of MOS Device Laboratories, BTL will cover the basic device concepts (for which he received the IEEE Morris N. Liebmann Memorial Award in 1974). He will then cover the three major application areas: imaging, memory and analog signal processing.

March 11 - "SOLID STATE NETWORK DEVICES FOR TELEPHONE" - Dr. Ralph Wyndrum, FELLOW IEEE

Dr. Wyndrum is head of the Loop Transmission Technology Department at Bell Telephone Laboratories. He will cover special solid state networks for telephone usage.

March 18 - "PATHWAYS IN PATTERN GENERATION FOR I.C.s" - Dr. Eugene Gordon, FELLOW IEEE

The ultimate packing density of components is inherently connected to the possible techniques of pattern generation and exposure. Conventional light and electron beam patterns will be discussed. Dr. Gordon is Director of Pattern Generation Technology Laboratory at BTL.

### Section II - Modern Topics

March 25 - "MAGNETIC BUBBLES" - Mr. Paul C. Michaelis

Mr. Paul Michaelis is a co-recipient for the 1975 IEEE Morris Liebmann Award for the concept and development of single-walled magnetic domains (Magnetic Bubbles) and for the recognition of their importance to memory technology. Nonvolatile, low cost memory is promised in the future utilizing these techniques.

April 1 - "NEW DEVELOPMENTS TOWARD LOWER COST SOLAR CELLS"

Dr. Henry Kressel, FELLOW IEEE, RCA Sarnoff Laboratories

Recent interest in large scale photo-voltaic energy conversion has led to the study of potentially low cost methods of forming solar cells in silicon and other materials.

April 8 - "ELECTRO AND ACOUSTO -OPTIC LASER BEAM DEFLECTION & MODULATION" - Dr. Erhard Sittig, FELLOW IEEE

Dr. Sittig is supervisor of activities involving optical information storage, display devices, automatic inspection systems for photolithographic masks and photolithographic exposure systems at Bell Telephone Laboratories.

April 15 - "OPTICAL COMMUNICATION" - Dr. Mauro Di Domenico

Dr. Di Domenico is head of the Optical Devices and Optical Sub-Systems Department of Bell Telephone Laboratories. He will cover optical fibers, GaAs laser sources, silicon avalanche photodiode detectors and optical carrier system performance.

## REGISTRATION FORM

Mail to: Dr. Bob McMillan, 171 Orange Rd., Montclair, N. J. 07042

Make check payable to "North Jersey IEEE"

Please enroll me in: \_\_\_\_\_  
\_\_\_\_\_ Section I, Integrated Circuits, \$20.00  
\_\_\_\_\_ Section II, Modern Topics, \$20.00  
\_\_\_\_\_ Both of above, \$30.00

Name \_\_\_\_\_ Phone (H) \_\_\_\_\_

Address \_\_\_\_\_ (W) \_\_\_\_\_

\_\_\_\_\_ Company \_\_\_\_\_

Full-time students will be admitted without charge upon receipt of a statement from the Student Chapter Advisor of their active student and IEEE status.

For further information: R. McMillan 645-5467 (office) or 645-5472 (sect'y) or 744-6794 (home); or call Al Cox 484-3500 (office) or 821-8232 (home).



N. J. Meeting:  
Failures Vs.  
Root Cause Analysis

“Failures vs. Root Cause Analysis” will be the topic discussed by Augustine “Gus” Magistro, of Picatinny Arsenal, at the February 11, 1976 meeting of the North Jersey Section Reliability Chapter meeting.

Throughout the development of any technical development activity, hardware failures occur. A primary task of management and systems engineers is to establish the normal performance limits for the hardware, recognize abnormal performance (failure) when it takes place, determine the cause of failure, and derive effective solutions. The determination of the cause of failure is often the most formidable task presented to engineers during a development. Failures are often the result of the unexpected and the intense pressure to meet schedule and cost goals. In many cases, the apparent problem is treated and several apparent problem symptoms are also treated, but often the same failure recurs. Significant costs in dollars, time, and

anxiety are suffered by several levels of management each time the corrective action is inadequate.

It became evident that a technique which assured that the root cause of a failure was detected and removed was essential. The root cause analysis technique was developed and produced dramatic and effective results. The basic root cause for each failure was clearly established, and in the majority of the cases it was reproduced in the laboratory. Demonstration of a complete understanding of the failure mechanism preceded any attempts at engineering solutions. This technique is a special presentation of the scientific method and it is believed that root cause analysis is of general benefit in solving a variety of engineering problems.

For further information, contact: Sid Markowitz at 328-5486, or Dan Bogush at 256-4000, Ext. 3757.

Time: 8 PM, Wednesday, February 11, 1976.  
Place: Singer-Kearfott Division, Plant 3, Rear Conference Room 1, McBride Ave., Little Falls, N. J.

An Apology

The Newsletter January cartoon, intended to show a “genie” being conjured up by modern electronics (in place of the usual brass lamp) has brought (at least two) letters of response protesting the unnecessary use of the semi-adorned female figure.

Although there was no intent to cause discomfort or to demean, nonetheless I regret my insensitivity to the feelings of any persons or groups who may have been offended. I was an integral part in the creation of this particular cartoon, and will for any further submissions attempt to be more understanding of the potential distress that a particular depiction may needlessly cause.

Bob McMillan, Chairman

FEEDBACK ANALYSIS

Due to the overwhelming response by our readers to the October Feedback Card, the results of the survey will be published in full in this issue. As you undoubtedly will remember, the questions were as follows:

- Question 1
- a) If we can set up a “For Sale”, would you support it?
- Answers
- Yes.....33  
No.....12
- b) Should it be confidential, whereby the Editor would act as a go-between if desired?
- Answers
- Yes.....3  
No.....30
- c) Do you have anything for sale? (What?)
- Sample Answers:
- Cars, Audio Equipment, Furniture, Appliances, Ham Equipment, Plants, Boats, and Periodicals.
- Question 2
- a) How about the other column, on money management — is it a good idea?
- Answers
- Yes.....30  
No.....9

As a result of this tremendous interest, a future issue of the newsletter will feature a “For Sale” column with direct contact between sellers and buyers. Anyone interested in placing an item in this column should fill in the feedback card on Page 3, including asking price and telephone number.

Several readers also volunteered to write articles on financial management and other subjects which involve ways to save money. Their names will be forwarded to Fran Booth, the Feature Editor.

N. J. Meeting:  
Salary Survey

A Joint Meeting of North Jersey Section and the Power Engineering Society will feature a review the I.E.E.E. Salary Survey. The speaker will be Mr. Walter Hawk, Senior Partner, Brentwood Personnel Associates, 1280 Route 46, Parsippany, N. J.

Mr. Hawk received his Bachelor of Science in Engineering from Clarkson College and his M.B.A. in Industrial Management from Seton Hall University. Mr. Hawk has been a Senior Partner with Brentwood Personnel Associates since 1970. Previously, he worked for more than eight years in Engineering Management for Public Service Electric & Gas Company.

Time: 7:30 PM, Thursday, February 26, 1976.  
Place: Jersey Central Power and Light, Punchbowl Room, Madison Avenue at Punchbowl Road, Morristown, N. J.

N. J. Meeting:  
Hitachi Rep To Speak

“Advanced Loss-Reduction Techniques in MM Wave Instruments” will be discussed by H. Hirotani of Hitachi Electronics Co., Ltd., Tokyo, Japan, on Wednesday, February 18, 1976, at the North Jersey MTT Chapter meeting.

Recent advances in MM Wave Low-Loss Filter and Transmission techniques continue to improve channel and power handling capabilities. These techniques

are particularly suitable for implementation in Satellite Ground Stations, Low-cost Terminals and various MM Wave Measurement instruments. This talk summarizes recent advances and applications in Japan.

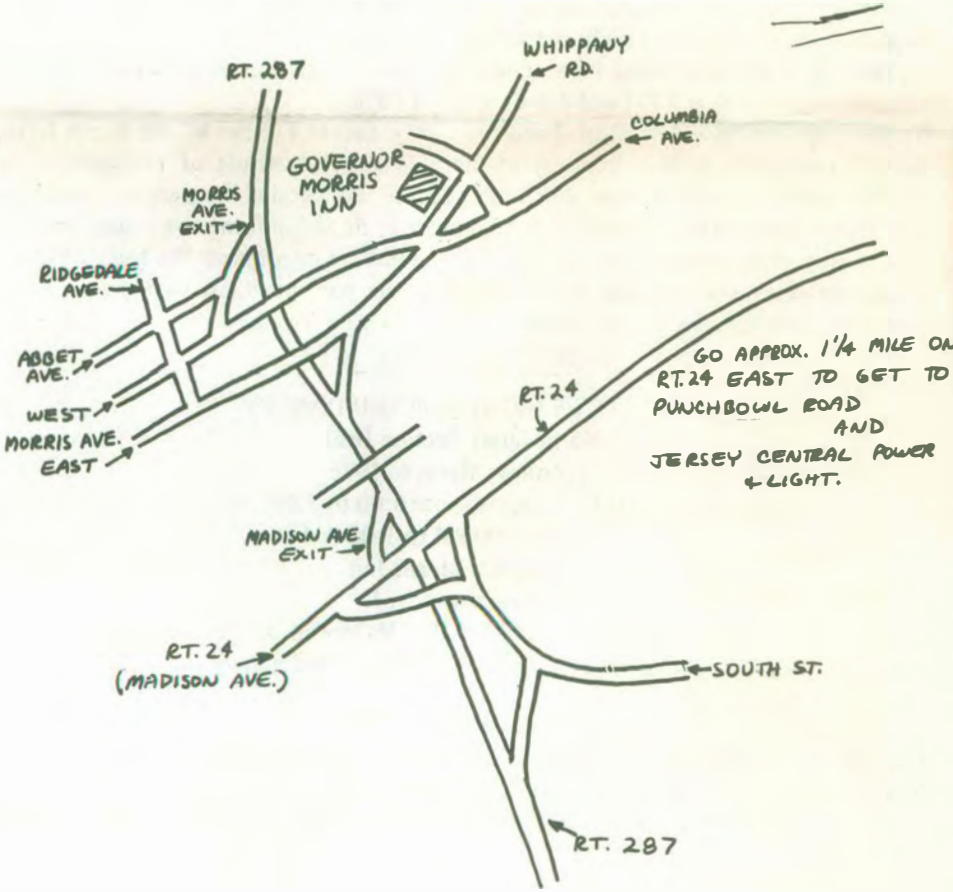
Mr. H. Hirotani received his B. S. Degree in Electrical Engineering from Tohoku University, Japan, in 1966. Since joining in 1966, Mr. Hirotani has been engaged in the research and development of MM Wave channel dropping filters. He is a member of the Institute of Electronics and Communication Engineers of Japan.

For further information contact E. W. Niemiec, ITTDCD (201) 284-2323.

Time: 8 PM, Wednesday, February 18, 1976.  
Place: ITT Avionics Auditorium, 500 Washington Ave., Nutley, N. J.  
Pre-Meeting Dinner: Park One Restaurant, 1 Park Ave., (off Rt. 3, Eastbound side) Lyndhurst, N. J. at 6 PM.

PE Course

The P. E. Exam Review Correspondence Courses sponsored by the North Jersey I.E.E.E. & Mid-Jersey Section of the A.S.M.E. will continue to be offered through May 1976. This is the sixth offering of these highly successful courses designed to aid engineers in the preparation for taking P.E. Exams. For additional details contact: E. M. McIntyre 1039 Bloomfield St., Hoboken, N. J. 07030 or phone 201-866-6833.



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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.

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## NEWLY ELECTED FELLOWS FROM THE NORTH JERSEY SECTION



**LAWRENCE R. RABINER**

For contributions to digital signal processing and speech communication research.

Lawrence R. Rabiner (S '62-M'67) was born in Brooklyn, New York, on September 28, 1943. He received the S. B. and S. M. degrees simultaneously in June 1964, and the Ph.D. degree in electrical engineering in June 1967, all from the Massachusetts Institute of Technology, Cambridge.

From 1962 through 1964 he participated in the cooperative plan in electrical engineering at Bell Laboratories, Whippany and Murray Hill, New Jersey. He worked on Digital circuitry, military communications problems, and problems in binaural hearing. Presently he is engaged in research on speech communications and digital signal processing techniques at Bell Laboratories, Murray Hill. He is coauthor of the book "Theory and Application of Digital Signal Processing" (Prentice-Hall, 1975).

Dr. Rabiner is a member of Eta Kappa Nu, Sigma Xi, Tau Beta Pi, and a Fellow of the Acoustical Society of America. He is President of the IEEE G-ASSP Ad Com, member of the G-ASSP Technical Committee on Digital Signal Processing, member of the G-ASSP Technical Committee on Speech Communication, former Associate Editor of the G-ASSP Transactions, member of the IEEE Proceedings Editorial Board, and member of the Technical Committee on Speech Communication of the Acoustical Society.



**FREDERICK A. RUSSELL**

For leadership in electrical engineering education.

Frederick A. Russell (A '36, M '42, SM '54) was born in New York City on April 18, 1915. He received the B. S. in EE degree in 1935 and the E. E. degree in 1939 from Newark College of Engineering; his M. S. degree was received in 1941 from Stevens Institute of Technology, and his D. Eng. Sc. degree in 1953 from Columbia University, working in the area of stability of non-linear sampled-data control systems.

After two years in industry, he began his teaching career as a teaching fellow at Newark College of Engineering 1937. After becoming Assistant Professor in Electrical Engineering in 1943, he joined the Columbia University Division of War Research where, in the years 1944-1945, he worked in the then new area of general purpose analog computers. Returning to N. C. E. after World War II, he became chairman of the Electrical Engineering Department in 1956, the post he held until this past June. He is presently Assistant to the President for Institutional Research.

He has been active in several IEEE committees from 1951 to date in the basic science and automatic control areas, and in the ASEE and the New York Alumni Chapter of Eta Kappa Nu. He is also a member of Tau Beta Pi and Sigma Xi.



**DONALD L. SCHARFETTER**

For contributions to computer modeling of solid-state microwave power sources and other semi-conductor devices.

Donald L. Scharfetter (M'62) was born in Pittsburgh, Pa., on February 21, 1934. He received the B. S., M. S. and Ph.D. degrees in electrical engineering from Carnegie Institute of Technology, Pittsburgh, Pa., in 1960, 1961 and 1962, respectively.

Since 1962, he has been a Member of the Technical Staff of Bell Laboratories, Murray Hill, New Jersey, where he has done research on metal-semiconductor contacts, junction diodes and transistors, radiation damage effects in semiconductors, and microwave diode oscillators. From March 1973 through 1975 he was Group Supervisor for Device Characterization and Simulation Aids Development. His present position is Group Supervisor for Silicon Integrated Circuit Design.



**ALAN D. WHITE**

For development and subsequent improvements of the visible light helium-neon laser.

Alan D. White (M '63, SM '75) is a member of the technical staff at Bell Laboratories, Murray Hill, N. J., where he has been working most recently in optical system design for photolithographic and laser micrographic applications. His prior work has been in the field of gas discharges with particular emphasis on telephone switching diodes and the 6328 A helium-neon gas laser.

After receiving the A. B. degree from Rutgers University and the M. S. degree in physics from Syracuse University he was employed at ITT Federal Laboratories in Nutley, N. J., for two years before joining Bell Laboratories. He is a member of the Optical Society of America and Phi Beta Kappa.



**BERNARD J. YOKELSON**

For contributions to the development of telephone electronic switching systems and operator service systems.

Bernard J. Yokelson is director of the Electronic Power Systems Laboratory at Bell Laboratories, Whippany, New Jersey.

Mr. Yokelson joined Bell Laboratories in 1948, concerned with one of the first coaxial cable transmission systems, microwave propagation studies, the development of a new multifrequency telephone receiver, and with defense projects. Later he was engaged in the design and development of an electronic system for converting existing telephone central offices to direct distance dialing facilities. From 1954 to 1966, Mr. Yokelson worked on systems and circuit development of electronic switching, and was involved in the Morris, Illinois field trial. He was also responsible for system design and development of the No. 1 Electronic Switching System. In 1966 he was promoted director of the Operator Systems Laboratory, where he had project responsibilities for the development of the Traffic Service Position System No. 1, a system to automate operator functions. He assumed his present position in 1974.

## DINNER SPEAKER

**PAUL H. NEWELL, JR.**

President,

New Jersey Institute of Technology

Dr. Paul H. Newell, Jr., took office as president of New Jersey Institute of Technology on July 1, 1975, bringing to the State's leading technological institution a national reputation in engineering education and research.

Dr. Newell came to NJIT from Texas A & M University where his association dated to 1969. As head of the department of industrial engineering there he coordinated a faculty and student body concerned with behavioral engineering, bioengineering, cybernetic engineering, and hygienic and safety engineering.

During his career at Texas he served as associate dean of the College of Engineering with primary responsibilities that included long range planning. He was instrumental in the establishment of inter-institutional educational agreements with other Texas institutions and since 1970 had held a joint appointment at Baylor College of Medicine where he was concerned with biomedical engineering, and rehabilitation research.

Earlier in his career (1966-69) Dr. Newell taught mechanical engineering at the University of Alabama, Birmingham, serving as director of the



Center for Bioengineering, the director of the Social and Rehabilitation Service Research Training Center (Medical College) and undertook research in cardiovascular biomedical engineering under a grant from the National Heart Institute.

Born July 1, 1933, at Nashville, Tenn., Dr. Newell served in the U. S. Marine Corps during the Korean War (Fifth Regiment, First Division), and subsequently attended the University of Tennessee, earning a B. S. in mechanical engineering in 1958. He taught at that institution for four years, earning his M. S. in mechanical engineering there in 1961.

In 1962 he was awarded the first of two National Science Foundation Faculty Fellowships to undertake graduate studies at MIT; in 1964 he earned the degree of Mechanical Engineer, in 1966 the Ph.D. in Mechanical Engineering, both at MIT. As a graduate fellow he did industrial oriented research at the National Magnet Laboratory, Cambridge, and at Oak Ridge National Laboratory, Tennessee. He has done additional post-graduate work at Clemson University, Baylor College of Medicine, the University of Wisconsin and the University of Michigan.

Dr. Newell is widely recognized, nationally and internationally, for his teaching and research activities. His professional memberships include the Alabama Academy of Sciences, the American Association for the Advancement of Science, the Biomedical Engineering Society, the International Society for Prosthetics and Orthotics, the New York Academy of Sciences and the Society of Sigma Xi.



IEEE NORTH JERSEY SECTION LECTURE SERIES – SPRING 1976

Study Group No. 1  
CRITICAL AND EMERGENCY ELECTRICAL SYSTEMS

Tuesdays – 7:00 to 9:00., Starting March 9, 1976  
ITT Avionics Auditorium (at foot of tower)  
500 Washington Ave.  
Nutley, N. J. 07100

Group Sponsor: John Domorski, Automatic Switch Co.  
Tel: (201) 966-2458

This Study Group will consider the methods available for assuring continuity of supply to lighting and critical power loads upon loss of the primary supply. Equipment for monitoring and upgrading normal supply voltage will be described. Solid-State uninterruptible supplies and time-sequencing of large emergency power systems will also be covered.

1. **March 9 – General Considerations** – The need for emergency power, National Electric code requirements and design considerations.
2. **March 16 – Diesel and Turbine Engines** – Features, size considerations, auxiliary requirements, fuel requirements and governors.
3. **March 23 – Generators** – Voltage, regulation, phasing and connections, and protection.
4. **March 30 – Synchronizing and Generator Controls** – Governor and voltage regulator requirements, enclosures, space requirements, automatic synchronizing and manual standby.
5. **April 6 – Automatic Transfer Switches** – Sequence of operation, accessories, withstand ratings, Underwriters Laboratories Standard 1008 and sizing.
6. **April 13 – Electronic Voltage Monitors and Regulators** – Types and range of regulators, voltage and frequency monitors analog and digital.
7. **April 20 – Batteries** – types, duty and reliability.
8. **April 27 – Uninterruptible Power Supplies** – Rectifiers, inverters, single phase and three phase, redundant and standard systems.
9. **May 4 – Battery Emergency Lighting Systems** – Code requirements, wall mounted, control systems, voltage considerations and battery choices.
10. **May 11 – System Design** – Three source arrangements, elevator schemes, and multiple switch sequencing.

NOTE: SPEAKERS TO BE ANNOUNCED

REGISTRATION FORM

Mail to: John Domorski, Automatic Switch Co., 6 Watsessing Ave., Bloomfield, N.J. 07003  
Make checks payable to: "North Jersey IEEE"

Please enroll me in: Critical and Emergency Electrical Systems Phone: \_\_\_\_\_

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Address: \_\_\_\_\_ City, State, Zip \_\_\_\_\_

Fee: \$75.00 IEEE Member; \$85.00 Non-IEEE Member (Deduct \$5.00 for checks received prior to March 1, 1976)

FULL TIME STUDENTS CONTACT GROUP SPONSOR FOR SPECIAL CONSIDERATION

IEEE NORTH JERSEY SECTION LECTURE SERIES – SPRING 1976

Study Group No. 2  
SOLID STATE PROTECTIVE RELAYS

Wednesdays—7:00 to 9:00 P.M., Starting March 10, 1976  
ITT Avionics Auditorium (at foot of tower)  
500 Washington Ave.  
Nutley, N. J. 07100

Group Sponsor: Al Cox, Bussmann Manufacturing Div.  
Tel: (201) 484-3500

The following ten sessions have been designed to acquaint Electrical Contractors, Utility and Consultant Engineers with the design and application of Solid State Protective Relays and Systems.

1. **March 10 – Components** – Switching speed, Temperature stability, Power capabilities and limitations of the transistor switch, Thyristor, Triac and driver
2. **March 17 – Gates and Timers** – Basic design, noise immunity and frequency limitations
3. **March 24 – Electromagnetic Measurement Circuits** – Comparator, Active and passive filters, Impedance and distant measurements
4. **March 31 – Counterparts of Electro-mechanical Devices** – Instantaneous, Inverse Overcurrent and Underfrequency Relays
5. **April 7 – Solid State Recloser Control** – Dual timing and reclosing from instantaneous, time delay and reclosing relay circuits. Transient protection and temperature stability techniques
6. **April 14 – Directional Comparison Relay Schemes** – Blocking, unblocking, logic, symbols and circuits, measuring function symbols and operation
7. **April 21 – Directional Comparison Tripping Schemes** – Permissive overreaching and underreaching
8. **April 28 – Phase Comparison Schemes** – High speed relaying of transmission lines through comparison of phase relationships
9. **May 5 – Phase Comparison Schemes** – (Continued)
10. **May 12 – Mini Computer Application** – Application of mini computers to relaying by means of on line digital fault calculation

NOTE: SPEAKERS TO BE ANNOUNCED

REGISTRATION FORM

Mail to: Mr. Al Cox, 21 Quince Place, North Brunswick, N.J. 08902  
Make checks payable to: "North Jersey IEEE"

Please enroll me in: Solid State Protective Relays Phone: \_\_\_\_\_

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Address: \_\_\_\_\_ City, State, Zip \_\_\_\_\_

Fee: \$75.00 IEEE Member; \$85.00 Non-IEEE Member (Deduct \$5.00 for checks received prior to March 1, 1976)

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NY&LI Sections, IEEE



Power and Industrial Div.

## EDUCATIONAL PROGRAM—SPRING 1976 SPECIAL STUDY GROUPS

Metropolitan Section



ASME

### REGISTRATION INFORMATION FOR SPECIAL STUDY GROUPS

#### FEE PER GROUP

\$40 each for members, IEEE, ASME;  
\$50 each for all others

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FOR FURTHER INFORMATION, CONTACT INDIVIDUAL SPECIAL STUDY GROUP  
COORDINATORS OR:

Gary Golinski  
Chairman—Educational Comm. IEEE  
Bussmann Mfg. Co.  
212-267-1466  
201-484-3500

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

#### REGISTRATION FORM

Name (printed) \_\_\_\_\_  
Firm \_\_\_\_\_ Position \_\_\_\_\_  
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Home Address \_\_\_\_\_

Study Group  
Member of:  
☐ IEEE  
☐ ASME  
☐ OTHER \_\_\_\_\_  
☐ NON-MEMBER  
Membership  
No. \_\_\_\_\_

(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

Registrations will be accepted at first and second sessions to the limit of room capacity

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

NY&LI Sections, IEEE



Power and Industrial Div.

## EDUCATIONAL PROGRAM—SPRING 1976 SPECIAL STUDY GROUPS

Metropolitan Section



ASME

### STUDY GROUP NO. 6 — VOLTAGE CONSIDERATIONS

### STUDY GROUP NO. 7 — ENERGY CONSERVATION

### STUDY GROUP NO. 8 — NOISE CONTROL

### STUDY GROUP NO. 9 — PRINCIPLES OF MOTOR CONTROLLERS

#### STUDY GROUP NO. 6 VOLTAGE CONSIDERATIONS TUESDAYS, 6:30-8:30 P.M., Starting March 9, 1976 Roger Smith Hotel, 47th St. and Lexington Ave., N.Y., N.Y.

Group Sponsors: *Mort Isaacs, Lizardos Engineering Assoc.*  
Tel. (516) 484-1020  
*Richard McGinnis, General Electric Co.*  
Tel. (914) 698-7450

Group Coordinators: *Anthony Lopinto, Jaros Baum & Bolles*  
Tel. (212) 758-9000  
*William Perlman, Roytran*  
Tel. (212) 782-1505

The selection and application of voltage is essential to the design of building distribution systems. Proper application can result in cost savings.

1. March 9 — Introduction to Voltage Considerations — System and equipment ratings. Economic considerations in choice of voltage and equipment. Voltage transformations, when, where and how much.

2. March 16 — Voltage Profile — Definitions, calculations and effects of spread, zone, drop and flicker.
3. March 23 — Voltage Compensation — Methods of reducing voltage drop and flicker. Voltage regulating and stabilizing equipment.
4. March 30 — Voltage Excursions — Nature and causes of over-voltages (i.e., lightning, static, switching surges). Case studies of failures.
5. April 6 — System Grounding — Definitions, advantages, methods, equipment rating and selection.
6. April 13 — Protection Against Voltage Excursions — Part I Equipment insulation systems, ratings and tests.
7. April 20 — Protection Against Voltage Excursions — Part II — Lightning protection equipment, application and coordination.
8. April 27 — Related Topics and Conclusion — Harmonics, causes and effects. System continuity — UPS systems.

Registrations will be accepted at first and second sessions to the limit of room capacity





# EDUCATIONAL PROGRAM — Special Study Groups



SPRING 1976

## STUDY GROUP NO. 7 ENERGY CONSERVATION

WEDNESDAYS, 6:30-8:30 P.M., Starting February 25, 1976

Stone & Webster, 1 Penn Plaza, N.Y., N.Y. (41st Fl. Training Room)

**Group Sponsor:** Roger Marchesse, New York City Housing Authority  
Tel. (212) 433-5033

**Group Coordinators:** E.N. Mercouris — RCA Globcom — (212) 363-4105  
Robert Schultz — PASNY — (212) 265-6510  
Sam Chin — PASNY — (212) 265-6510  
Alex Korn — Stone & Webster — (212) 760-2693

This series of lectures is oriented towards conceptual load design techniques utilizing both manual and computer methods on load analysis, forecasting, energy conservation and total energy bases.

- February 25 — Energy Consumption** — Energy consumption per capita, per user and per type of facility. Heat losses, day-degrees, reverse cycles, heat pumps. IEEE (Red and Grey Book), NEMA, NEC and HUD methods of calculation.
- March 3 — Methodology of Load Forecasting** — Modeling techniques (industry-by-industry & weather models, econometric equation.) Mathematical derivation of the weather load model. Residential electricity demand econometric forecasting model. Computer applications. (Data accumulation and analysis; probabilistic forecasting.)
- March 10 — Total Energy** — Basics, guidelines to feasibility case studies. Designing the plant and selecting equipment. Future trends solar energy.
- March 17 — Predicting Control Performance of Residential Heating Systems with an Analog Computer** — System performance with a computer.
- March 24 — Energy Utilization** — Computer programs for a residential house.
- March 31 — Solid State Controls** — For in-space electric systems.
- April 7 — Load Demands** — All electric heating, air conditioning system and power load demands controlled by on-line computer (Honeywell "516" Data Center).
- April 14 — On-Site Total Energy** — Heat recovery, kilowatt and steam loads in summer and winter. Computer printouts. Cost of fuel, cost of electricity, capital recovery, rate of return and cash flow.
- April 21 — Uninterruptible Power Supply (UPS)** — Energy systems static type schemes and redundancy.
- April 28 — All Electric Homes and Solar Energy** — Suburban & rural communities, rates and consumption level, solar energy design. Window glass panes, solar energy pick-up, heat transmission, coefficient of utilization, window-wall corners with water circulation.
- May 5 — Advanced Energy Systems** — Solar energy and fusion, power generation concepts.
- May 12 — Present Energy Applications** — Nuclear and environmental concepts.

## STUDY GROUP NO. 8

### NOISE CONTROL

WEDNESDAYS, 6:30-8:30 P.M., Starting February 25, 1976

Consolidated Edison Co., Rm. 1425, 4 Irving Pl., N.Y., N.Y.

**Group Sponsor:** John Tambasco, NYS Urban Develop. Corp.  
Tel. (212) 974-7605

**Group Coordinators:** Frank Logan, Consolidated Edison  
Tel. (212) 460-4295  
Sidney Julius, N.Y. Telephone Co.  
Tel. (212) 956-8698

**Instructors:** A.M. Teplitzky, Consolidated Edison Co.  
Dr. Maurice H. Miller, Ph.D. — Professor  
of Audiology at New York University  
(Lecture #6)

These broad based lectures will acquaint both the engineer and the environmentalist with a working knowledge of acoustics and noise control. Environmental and occupational noise exposure regulations require that noise be considered as a design parameter.

- February 25 — Acoustical Terminology** — Physics of sound, definitions and analysis.
- March 3 — Sound Measurements** — Use of sound level meter, measurement techniques. Demonstration.
- March 10 — Noise Criteria** — Federal, State and city regulations. Subjective noise criteria.
- March 17 — Community Noise** — Sources, factors affecting outdoor sound propagation. Calculations.
- March 24 — Industrial Noise** — OSHA standards and compliance program development. Measurements.
- March 31 — Anatomy and Physiology** — Physiological effects of noise.
- April 7 — Noise in Large Spaces** — Sound fields in large rooms. Calculations and effects of sound absorbers.
- April 14 — Noise Control** — Effectiveness of barriers and enclosures. Sound transmission loss of partitions. Calculations of noise reduction between spaces.
- April 21 — Vibration Isolation** — Use of vibration isolators. Effective use of damping materials.
- April 28 — Noise Specifications** — Performance Standards for noise abatement hardware. Specifying noise emission levels for equipment.

## STUDY GROUP NO. 9

### PRINCIPLES OF MOTOR CONTROLLERS

THURSDAYS, 6:30-8:30 P.M., Starting February 26, 1976

Stone & Webster, 1 Penn Plaza, N.Y., N.Y. (41st Fl. Training Rm.)

**Group Sponsor:** William Bodin, Kennedy Electric Supply  
Tel. (212) 527-5600

**Group Coordinators:** Ed Gimbut, Bussman Mfg.  
Tel. (212) 267-1466  
Alex Korn, Stone & Webster  
Tel. (212) 760-2693

This course is intended to provide the design engineer with a working knowledge of motor controls.

- February 26 — Basic Principles of Motor Controllers** — Standards, codes and basic components of motor control.  
**Speaker:** Bill Bodin, Kennedy Electric Supply
- March 4 — Fundamentals of Motor Controls** — TYPES; manual; magnetic, combination, reduced voltage, multi-speed, part winding and wound rotor.  
**Speaker:** Bill Bodin, Kennedy Electric Supply
- March 11 — Application of Pilot Devices** — Relays, thermostats, pushbuttons, limit and float switches.  
**Speaker to be announced.**
- March 18 — Motor Control Centers** — Industry standards, codes, types and applications.  
**Speaker:** William La Rosa, Cutler Hammer
- March 25 — Application of Motor Controls in Commercial Buildings** — Covering HVAC and pump controls.  
**Speaker:** William La Rosa, Cutler Hammer
- April 1 — Application of Motor Controls in Industrial and Original Equipment Manufacturing.**  
**Speaker:** Bill Bodin, Kennedy Electric Supply
- April 8 — Solid State Logic and Computer Applications** — Computer control of multi-function systems. Control of total power demand.  
**Speaker to be announced.**
- April 22 — Preventive Maintenance and Repair of Motor Controls.**  
**Speaker:** Bill Bodin, Kennedy Electric Supply



Career/Life Planning

A Career and Life Planning Workshop employing the Crystal Method of Career planning will be held at Rutgers University on Saturday, March 13, 1976. The workshop will feature professional career counsellors, who will deal with all aspects of career planning: career entry, mid-career changes, reestablishing a career, etc.

The cost of the seminar, which includes luncheon, text books and all material, is:

Students, Unemployed or	
Partially employed	\$20
IEEE Members	\$25
Non-members	\$35

If you plan to attend this seminar please send your name and address to:  
Q. G. Gennaro  
Room 1B536  
Bell Laboratories  
Holmdel, N. J. 07733

A formal notice will be sent to all those who plan to attend. A deposit will be requested of all attendees by March 1, 1976. Deposits will be in the amount of \$10 and are nonrefundable. DO NOT SEND A DEPOSIT UNTIL YOU RECEIVE THE FORMAL ANNOUNCEMENT!

Employment Assistance

Employment Assistance Program Workshops will be held prior to each section meeting until further notice. Each workshop will begin at 6:00 PM at the Section Meeting location (generally the Jersey Central Power and Light Company in Morristown). These workshops will be open to all section members, however the associated workshop booklets will be distributed on a priority basis to unemployed members. (A policy regarding distribution of workshop booklets to employed members will be determined depending on the demand). Unemployed members may register for the Employment Assistance Program during these workshops. (Due to the limited resources of the Program, referral services will be limited to unemployed members).

Computers In CCUs

The Metropolitan New York Chapter of the IEEE Group on Electronics in Medicine and Biology (GEMB) announces the following program for February 11, 1976:

Speakers Charles L. Feldman, Sc.D., V.P. for Corporate Development, Electronics for Medicine, Inc., and professor at Worchester Polytech. Institute; and John Morrison, M.D., Director of Coronary Care, North Shore University Hospital, and Assistant Professor at Cornell University Medical College, will

address the topic, "Computers in Coronary Care Units."

The meeting will be held on Wednesday, February 11, 1976 at 7:30 PM at Rockefeller University, South Lab.

For further information, call W. H. Buchsbaum at (212) 240-5594.

Time: 7:30 PM, Wednesday, February 11, 1976.

Place: Rockefeller University, South Lab, Rm. 204, 66th St. and York Ave., N. Y. C.

Pre-Meeting Dinner: 6 PM, Tower Cafeteria, 64th St. and York Ave.

I & M Spring Seminar

The New York, North Jersey and Long Island Joint Chapter Instrumentation and Measurements announces a Spring Seminar on Electrical Insulation Practices. Such topics as Corona, Dissipation Factor, Tracking and Errosion Resistance, absorption, DC vs AC Testing, Dielectric Constant and Loss, Standoffs and Insulators, and potting material. Prominent experts in the field will be presenting the topics at the seminar.

Detailed information and applications can be obtained by writing to: Dr. A. R. Blanck, Rutherford Research, P.O. Box 162, Rutherford, New Jersey, 07070 and Mr. R. Grossberg, Consolidated Edison Co. of N. Y., Inc., 4 Irving Place, New York, New York, 10003.

Microprocessors

The New York and Long Island Section of the Joint Power Engineering Society and Industry Application Society will sponsor a general meeting on "Microprocessors: Hardware and Software Aspects."

Dr. Bob Borrmann, Associate Professor at Manhattan College who has taught courses in digital electronics and computers (hardware and software) and will teach a course "Microprocessors and Digital Systems" in the spring semester will be one of the speakers. The second speaker will be Mr. Bob Burlingame, Specialist, Field Applications Engineers for Motorola, is an experienced lecturer on Microprocessors and has had better than ten (10) years of engineering experience.

Both of these microprocessor experts will acquaint the audience with those aspects that range from the microprocessor as used in a computer system to how a program is coded and debugged.

Date: Wednesday, February 18, 1976.

Time: 6:00 PM with refreshments served at 5:30 PM.

Place: Stone & Webster Inc. Offices, 41st Floor Auditorium, One Penn Plaza, New York, N. Y.

Communications Transmission

"Communications Transmission Seminar High-Speed Digital Transmission Techniques" is the title of a one-day seminar scheduled at Princeton University, Engineering Quadrangle Convocation Room, Princeton, N. J. on March 16, 1976. Sponsors are the IEEE New Technical and Scientific Activities Committee, IEEE Communications Society of the Jersey Coast Chapter and Princeton University, Dept. of Electrical Engineering.

The increasing use of digital transmission facilities holds promise for a greater cross-fertilization of ideas and increased competition among the vendors and suppliers of communications services and equipment than has been prevalent. Knowledge of the state-of-the-art in this area becomes correspondingly more important for those affected by it.

This one day seminar is the second in a series of dialogues between telephone carrier system designers and the cable television industry. A program of seven presentations by working experts in the

Backstage At The Met

The officials of the Metropolitan Opera House have again graciously consented to be the host of members of the IEEE and their wives at a backstage tour of their facilities.

The new innovations were designed and built solely for the new Met. The main stage is a huge platform divided into seven lift sections, each capable of moving up or down independently or conjunctively. In addition, there are three large stage wagons off-stage, each permitting the erection of an entire scene, and capable of being rolled into position on the main stage. The Met also has two cycloramas — huge backcloths traveling on a track around the entire stage for depicting motion or depth.

The tours have been arranged for Saturday mornings, March 6 and 20, 1976 at 10:15 AM.

In conjunction with the tour, a very limited block of tickets has again been reserved for our group for the matinee performances of "Aida" on March 6 and "Ariadne auf Naxos" on March 20. Pairs (only) of tickets are \$37; and check or money order made out to P&I Division, New York Section, IEEE must be received by February 22. Because of the short supply of tickets, requests must necessarily be limited to one pair.

Requests for reservations for the tour and/or the Opera performance will

fields of digital transmission and cable television will emphasize fundamental techniques and the capabilities of the various transmission media along with present and future applications.

For further information and advance registration, contact Dr. Paul Schnitzler, Bell Laboratories, Room 3B-308, Holmdel, New Jersey 07733, (201) 949-2216.

REGISTRATION FORM

Fee Schedule  
IEEE Member \$40.00, Non-Member \$45.00, including luncheon (first 100 applicants only) and Conference Notes. \$5.00 additional for registration after March 9, 1976. Additional copies of Conference Notes, \$15.00

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Room 2E504  
Holmdel, New Jersey 07733

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Please fill in completely the form below:

Mr. John R. Hudson  
570 Lexington Ave.  
New York, N. Y. 10022

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(Name) \_\_\_\_\_

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(City) \_\_\_\_\_ (Zip) \_\_\_\_\_

(Telephone) \_\_\_\_\_

Tour — 2 tickets for: (circle one)  
March 6 only March 20 only  
March 6 or 20

Opera  
Enclosed is my check or money order for \$37.00 made out to P&I Division, New York Section, IEEE for two tickets for the Saturday matinee opera performance on: (circle one)  
March 6 only March 20 only  
March 6 or 20

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1	2	3	4	5	6	7
8	9	10	11 NJ REL CHAPTER MEET GEMB MEET	12 <i>Lincoln's Birthday</i>	13	14 <i>St. Valentine's Day</i>
15	16 <i>Washington's Birthday</i>	17	18 NJ MTT MEETING NY P&I MEETINGS	19	20	21
22	23	24	25	26 Start of NJ SECTION TUTORIAL SEMINARS  NJ SECTION & P&I MEET "SALARY SURVEY"	27	28
29						MARCH 6 NJ SECTION ANNUAL DINNER- DANCE

Offer A Job

If you have a job opening for an IEEE member, please send details of it to the Employment Assistance Program. This should be typewritten and suitable for reproduction. It should include a brief description of the duties and responsibilities, the minimum educational and experience requirements, and the name, address and telephone number of the person(s) to be contacted by applicants. Job openings submitted in this manner will be included in a brochure to be distributed to unemployed members periodically. Please mail all job openings to:

Quayne Golden Gennaro, P. E.  
Room 1B-536  
Bell Laboratories  
Holmdel, N. J. 07733

NY Power Meeting

A meeting of the Power Generation Group of the Power and Industrial Division (Power Engineering Society),

N.Y. Section, will be held on Wednesday, February 18, 1976.

Mr. R. L. Hanes of the Rochester Instrument Systems Co. will be speaking on the topic, "Isolation in Nuclear Systems". Mr. Hanes' discussion will emphasize how to meet the separation criteria for nuclear plant control boards and panels. This meeting will take place in the Stone and Webster Training Room - 41st floor - Penn Plaza, New York City, at 5:45 PM. Pre-meeting free coffee will be served at 5:15 PM.

Region I Student Conference

Final plans have been made for the first IEEE Region I Student Conference to be held April 15, 16 and 17, 1976. The conference location will be in Boston, Massachusetts at Northeastern University. Due to a conflict with college exam schedules, the conference will not be held in conjunction with ELECTRO, the regional conference.

Highlighting the conferences will be: Region I Student Prize Paper Contest; Collegiate Design Contest; Leadership

Workshops for Student Branch Counselors and Officers; One-Day Student Oriented Short Course on Microprocessors; Wine and Cheese Reception and other Social Events; Professional Concerns Seminars; Student and Industrial Exhibits; Tours.

Lodging for those desiring it will be arranged for exceptionally reasonable rates at the Swiss Chalet Motor Lodge, not far from the Northeastern University campus.

ELECTRO/76 Expo Nears Sell Out

Exhibit space for ELECTRO/76, the IEEE international convention in Boston, is more than 90% committed now, it was announced by William C. Weber Jr., general manager.

The convention and product exposition will open its four-day run in Hynes Auditorium and the Sheraton-Boston Hotel on May 11. The event, the first IEEE international convention outside New York City, will be presented in Boston and New York in alternate years, starting with next Spring's presentation.

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