The IEEE
Newsletter

PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

Volume 23 February 1977 No. 7

Published monthly except June and July by the North Jersey Section of the Institute of Electrical & Electronics Engineers, Inc. Office of Publications: 399 Howard Boulevard, Mount Arlington, N. J. 07856.

NEWLETTER STAFF
Editor . . . . . Ray Vaccari
Managing Editor. . . . . B. Blair
Business Manager . . . . . M. M. Perugini
Staff: Joe Winston
John Zeiss
George Fen
Publications Chairman . . . . . Joe Winston

Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial matter should be addressed to: Ray Vaccari, Editor, 236 Summit Road, Mountainside, N. J. 07092. All communications concerning business matters, including advertising, should be addressed to: The Newsletter, c/o Girard Associates, Inc., 399 Howard Boulevard, Mt. Arlington, N. J. 07856.

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

REPORT ALL ADDRESS CHANGES TO:
IEEE Service Center
445 Hoes Lane
Piscataway, N. J. 08854
(201) 981-0060
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 OFFICERS

Chairman. . . . . Frank Gialanella
Vice Chairman. . . . . Donald G. Bathke
Treasurer. . . . . Ken Oexle
Secretary. . . . . Alan H. Stolpen
Member-At-Large . . . . . .Alex Brown
Member-At-Large . . . . . Alex McPhee
Member-At-Large . . . . . Jerry Uhrig
Jr. Past Chairman . . . . . Robert E. McMillan

Second Class Postage Paid
at Mount Arlington, N. J.

Activities Reminder: Clip To Calendar

February 2 – Clinical Engineer's Response To New Codes
February 15 – Progress In Solid-State Microwave Devices
February 16 – Energy Conservation
February 17 – Film Carriers
February 22 – USAB: Its Effect On IEEE And You
February 23 – Industrial Commercial Products' Reliability
February 23 – Underground Switchgear
March 2 – Fellows Banquet
March 2 – Overview Of CT Scanners

Final Reservation Date Nears For Banquet

Yes, that's right, the Section Banquet is about a month away.

Reservations are required and must be completed by February 21. **Use the reservation form included in the Newsletter.**

At the Banquet on March 2, 1977 we will be honoring our eight new Fellows and recognizing some 20 colleagues who advanced to the Senior Member grade in 1976. Various Section Awards will also be presented.

The affair will be held at the Chanticler in Millburn, New Jersey. The $15 per person subscription price includes **both a complete Cocktail Hour** followed by a **Prime Rib Dinner.** Be sure to arrive promptly at 7 PM when the Cocktail Hour begins.

A map showing travel routes to the Chanticler appears in the Newsletter. If additional information is required, call Ken Oexle, Banquet Chairman, at (201) 539-6111, Ext. 488.

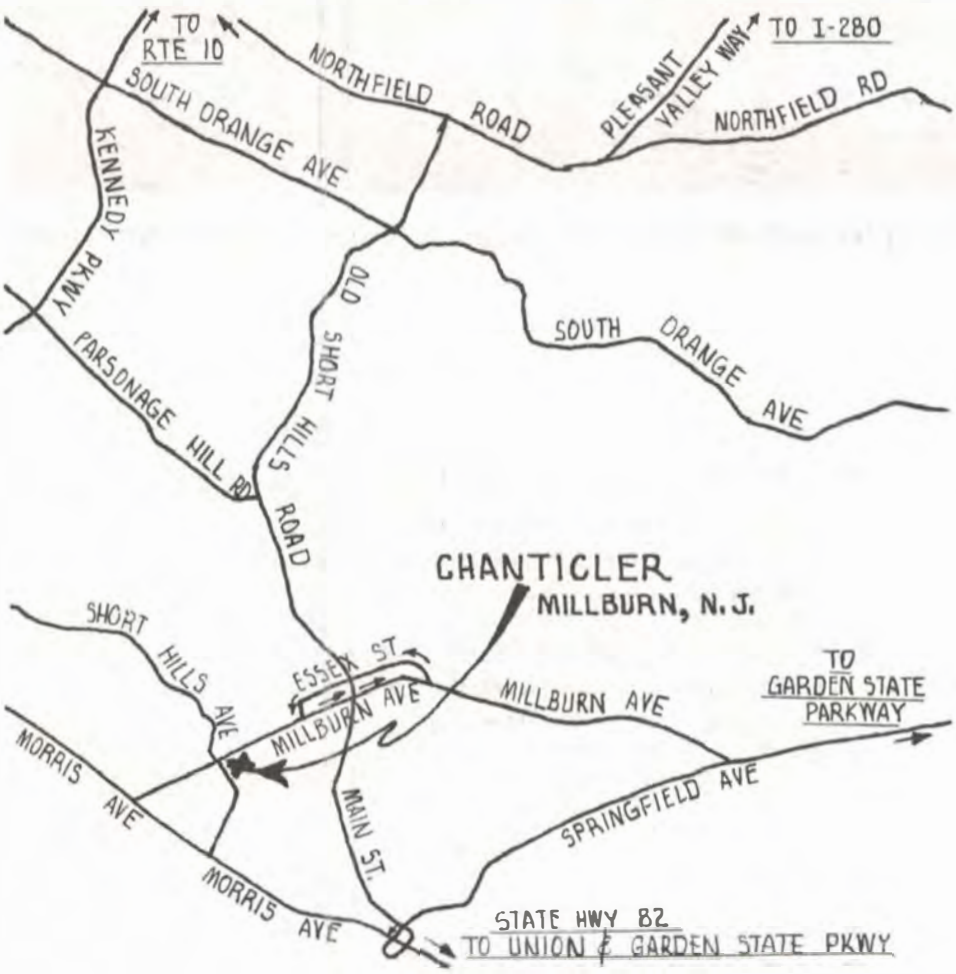
1977 Elected Fellows In North Jersey Section

The North Jersey Section is honored to have eight of its members elected by the Board of Directors as Fellow of the Institute. This is conferred by invitation to senior members of outstanding and extraordinary qualifications and experience and who have made important individual contributions to the profession.

There were 133 new Fellows elected this year. The IEEE Bylaws limit the number advanced in a year to this high grade to not more than six-tenth percent of the senior members and not to exceed one-tenth percent of the total Institute membership.

A brief biography of each of our new Fellows follows. These will receive special recognition at our Section's Annual Banquet on March 2, 1977.

An Event For You And Your Spouse



Subscription Price: $15/Person (Includes Cocktail Hour and Dinner).
Time: 7 PM.
Reservations: Required by February 21, 1977.
Use form or phone K. J. Oexle (201) 539-6111.

Kenneth J. Oexle
Jersey Central Power & Light Company
Madison Avenue at Punch Bowl Rd.
Morristown, N. J. 07960

Please forward _____ tickets at $15 each (make checks payable to North Jersey Section IEEE) to:

Name _____

Address _____

_____ Zip: _____

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

_____

_____

_____

Dinner Speaker

DR. SHEPARD BARTNOFF
President
Jersey Central Power & Light Co.
Subsidiary of General Public Utilities Corp.

Dr. Bartnoff was elected president of Jersey Central Power & Light Company Sept. 7, 1972, prior to which he held the position of director of environmental affairs for General Public Utilities Service Corp.

Dr. Bartnoff received his bachelor of arts degree in mathematics from Syracuse University in 1941, his master of arts degree in physics from Syracuse in 1944 and his doctor of philosophy degree in physics from Massachusetts Institute of Technology in 1949.

From 1949 to 1955, Dr. Bartnoff held the successive positions of instructor, assistant professor, associate professor and executive officer in the physics department at Tufts University. While there he was engaged in a research project on piezoelectricity and radar meteorology. From 1951 through 1953, Dr. Bartnoff was engaged in studies in radar meteorology at the Air Force Cambridge Research Center.

In 1955 Dr. Bartnoff entered private industry when he joined the Westinghouse Atomic Power Division where initially he worked on the design of reactors and reactor systems. Later he was manager of in-house sponsored research and development including the Westinghouse programs in the Saxton and Carolina-Virginia Tube Reactor research and development projects, and reliability manager of the Advanced Reactors Division.

He joined General Public Utilities Corp. in 1968 as nuclear fuels manager and later was manager of engineering and director of environmental affairs, the post he held prior to being elected president of JCPL.

1977 Fellows In The North Jersey Section

MAURO DiDOMENICO, JR.

For contributions to optoelectronic devices for optical fiber transmission systems.

Mauro DiDomenico, Jr. was born on January 12, 1937 in the Bronx, N. Y. He received the B.S., M.S. and Ph.D. degrees in electrical engineering from Stanford University, Stanford, Calif., in 1958, 1959 and 1963, respectively.

Since joining Bell Laboratories in 1962, he has been engaged in studies on lasers and laser devices, electro-optic modulators, nonlinear optic materials and devices, silicon photodiode detectors, luminescence in III-V compound semiconductors, and optical communications systems. He is presently head of the Lightwave Devices and Subsystems Department, responsible for the development of GaAs laser transmitters, light emitting diode transmitters and silicon photodiode detectors and receivers for optical fiber communications systems.

RICHARD W. DIXON

For contributions to the theory and realization of acousto-optical modulators.

Richard W. Dixon was born in Hubbard, Ore., September 25, 1936. He received the A.B. degree, summa cum laude, from Harvard College in 1958. During the academic year 1958-59, he was the Harvard College Henry Russell Shaw Traveling Fellow. He received the M.A. and Ph.D. degrees in Applied Physics from Harvard University in 1960 and 1964, respectively. During 1964 he was a post-doctorate fellow with Professor N. Bloembergen at Harvard.

Upon joining Bell Laboratories, Murray Hill, N. J. in 1965, he became concerned with problems related to the interaction of light and elastic waves in solids and liquids. This work led both to practical optical modulators and deflectors, and to a more fundamental understanding of the acousto-optic interaction, nonlinear acoustics, magneto-acoustics, etc. In 1968, he became a supervisor in the Electroluminescent Device Department, with responsibility for the development of semiconductor diode light emitting devices, specifically red-and green-emitting GaP. Since 1973, he has been a supervisor in the Gallium Arsenide Laser Department with responsibility for the device aspects of gallium arsenide communications laser development.

RAYMOND A. HUSE

For technical leadership in developing innovative energy conversion and transmission technology for bulk power systems.

Raymond A. Huse graduated from the University of New Hampshire with a B.S. in Electrical Engineering in 1938. In 1939 he received his M.S. in EE at Harvard University. He then joined Public Service Electric & Gas Co. in the electrical design of power plants. On leave from 1942-1945, he served in U.S. Naval Reserve as Lieutenant, Airborne Radio Maintenance office on the Aircraft Carrier USS Langley. On his return to Public Service, he had numerous supervisory assignments. From 1957-1961 he was on leave as an electric utility consultant to Princeton University Plasma Physic Laboratory Project Matterhorn. He is still active as a consultant, a member of their Utilities Advisory Committee and in 1972-74 was chairman of the Steering Committee of the University's Controlled Fusion Project.

At present he is manager of Research and Development for Public Service active in developing new concepts in energy conversion, transmission, distribution, conservation and utilization.

G. LORIMER MILLER

For contributions to nuclear instrumentation and its innovative extension to measurements in other scientific fields.

G. L. Miller was born in New York City in 1928 and was educated in England. After graduating from London University with an M.Sc. in mathematics and a Ph.D. in experimental nuclear physics, he joined the Instrumentation Division of Brookhaven National Laboratory in 1957.

From 1959 to 1963 he worked jointly at Brookhaven and Bell Laboratories on various aspects of nuclear instrumentation and the development of semiconductor radiation detectors. After joining the Radiation Physics Department of Bell Laboratories full time in 1963 he was involved in an extended series of satellite experiments that started with Telstar I, as well as the cooperative Tandem Accelerator program run jointly by Rutgers University and Bell Laboratories. Following the year of 1969-70 on leave at Aarhus University in Denmark, he returned to Bell Laboratories, and since that time has been engaged in the development of novel physical measurements, primarily on semiconductor materials.

BERNARD T. MURPHY

For contributions to the field of integrated circuits.

B. T. Murphy received the B.Sc. degree in medical physics from Leeds University, Leeds, England.

From 1956 to 1959, he worked on electron beam focusing problems at Mullard Research Laboratories. Since 1959, he has worked primarily in the integrated circuit field. While with the Westinghouse Semiconductor Division, he invented the buried collector structure now widely used for bipolar integrated circuits, and was also one of the early experimenters with dielectric isolation. In 1962, he helped found Siliconix, Inc.

Since 1963, he has been with Bell Laboratories, Murray Hill, N. J. His work there has been concerned with cost modeling of integrated circuits, with high speed integrated circuits, delta modulation CODEC's, IMPATT diodes, and new integrated circuit structures. He is now head of the Integrated Circuit Design Department and is responsible for CMOS and bipolar integrated circuit designs.

He is author and coauthor of 25 patents and a number of publications.

JAMES J. O'CONNOR

For contributions to the advancement of communication to the engineering profession.

James J. O'Connor is a graduate of New York University holding an E.E. degree. After having served 10 years in construction, he concentrated on test engineering in power plants and substations. At present, he is Editor-in-Chief of "Power" magazine, published by Mc Graw Hill. He lives in Rivervale, N. J.

O'Connor has appeared on television and radio on many occasions, representing the engineering profession; specifically, on matters dealing with power and international technological advances. He is recognized widely in the field of Energy Management. The American Business Press panel of judges honored O'Connor with the Jesse H. Neal Award for "The Best Series of Editorials in 1974" The subject–Energy Management Guidelines.

He is editor and author of the "Standard Handbook of Lubrication Engineering." O'Connor is active in the American Society of Mechanical Engineers, IEEE, American Society of Lubrication Engineers, Central Engineering Society and National Society of Professional Engineers. He is the founder and member of the Board of Directors of the Central Engineering Society. He is a member of Eta Kappa Nu and a Registered Professional Engineer in New York and New Jersey.

SIMON M. SZE

For contributions to semiconductor device research and to education.

S. M. Sze received his B.S. from the National Taiwan University, and his M.S. from the University of Washington. Stanford University granted him a Ph.D. in 1963. He joined Bell Telelphone Laboratories, Murray Hill, N. J. in 1964 as a member of technical staff and was appointed supervisor of the Gallium Arsenide Avalanche Devices Group in 1969. At present he is on leave from Bell Telephone Laboratories and is with the Electrical Engineering Dept. of National Taiwan University, Taipei, Taiwan, Republic of China.

Dr. Sze has wide experience in the field and has authored or co-authored more than 60 technical papers, is a contributor to two books and sole author of a third entitled "Physics of Semiconductor Devices." He has several patents on semiconductor devices, including metal-semiconductor diodes, photodetector, IGFET, and others.

DAVID G. THOMAS

For contributions to the understanding of luminescence in semiconductors and to the development of light-emitting diodes.

David G. Thomas is executive director of the Transmission Systems Division-Holmdel at Bell Telephone Laboratories. He lives in Summit, N. J. A native of London, England, Dr. Thomas received the M.A. and D.Phil. degrees from Oxford University in 1950 and 1952, respectively.

He joined Bell Laboratories in 1954 and initially engaged in research on semiconductor properties of zinc oxide. He was named head of the Semiconductor Electronics Research Department in 1962. In 1968, he became director of the Electron Device Process and Battery Laboratory. In 1969 he was appointed executive director, Electronic Device, Process and Materials Division, at Murray Hill. He assumed his present position in April 1976.

Dr. Thomas is the author of a number of technical articles and is a Fellow of the American Physical Society. In 1969 he shared the Oliver E. Buckely Solid State Physics Prize of the American Physical Society with J. J. Hopfield.

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

NY&LI Sections, IEEE

Power and Industrial Div.

Metropolitan Section

ASME

EDUCATIONAL PROGRAM—SPRING 1977
SPECIAL STUDY GROUPS

Study Group No. 6
MICROPROCESSOR TECHNOLOGY AND APPLICATIONS

Study Group No. 7
MONEY MANAGEMENT

Study Group No. 8
BUILDING AUTOMATION SYSTEMS APPLICATIONS

Study Group No. 9
LIGHTING—THEORY AND APPLICATION

WHY SHOULD YOU ATTEND OUR STUDY GROUPS:

Self-development and continuing growth of the professional in all phases of engineering has never been as important as it is now. Every day new techniques are developed and new knowledge is available which could be of vital importance in your professional activities. Keeping up with these continuing and rapid changes is imperative for any individual to stay on top of important new developments.

By attending our study groups knowledge of new facets in business and industry can be obtained. Each study group is structured in such a way as to encourage participation from the attendees. Raising questions and discussing case histories and solutions in a professional atmosphere creates a profitable learning experience for all involved.

You owe it to yourself to attend these stimulating study groups. It's a sure investment in your future.

NEW YORK & LONG ISLAND SECTION IEEE
POWER & INDUSTRIAL DIV.

PLEASE POST ON BULLETIN BOARD

EDUCATIONAL PROGR

STUDY GROUP NO. 6
MICROPROCESSOR TECHNOLOGY AND APPLICATIONS

MONDAYS, 6:00-8:00 PM, Starting February 28, 1977
Stone & Webster (41st Floor Training Room)
1 Penn Plaza, New York, N.Y. 10001

Group Sponsor: *Kurt Herzog*
Port Authority of N.Y. & N.J.
(212) 466-4203

Group Coordinator: *Alan Kudelka*
Automatic Switch Co.
(201) 344-3765

This intensive course is designed to give the student an understanding of microprocessor basic concepts; assembly language programming concepts and digital logic design within a microprocessor environment. Students will learn to assemble and edit programs, implement logic which requires assembly language and digital logic packages to interact.

Reference books for this course will be available only when ordered at pre-registration: "An Introduction to Microcomputers" by Adam Osborne, copyright 1976 by Adam Osborne & Associates, Inc., Berkeley, Calif., 2 Volumes. $20 per set.

1. **February 28—Elements of a Microcomputer**—The microprocessor. Memory; organization and classification. Data, address, and control busses. Basic microprocessor operations. Sequence of execution of instructions. System timing. (Chap. I, 3, 4, Vol. 1)
2. **March 14—Binary, Octal & Hexadecimal Arithmetic**—Boolean and logical operations. BCD arithmetic. Basic microprocessor arithmetic and logical instructions. Basic load, store, and jump instructions. Addressing modes. Conditions/status flags. Conditional branching. (Chap. 2, 3, 6, 7, Vol. 1)
3. **March 21—Microprocessor Input/Output (I/O)**—Programmed I/O. Interrupts. Subroutines. Use of the stack. Direct memory access (DMA). Peripheral hardware for interfacing microprocessors to the outside world. Software/hardware tradeoffs. (Chap. 5, Vol. 1)
4. **March 28—Microprocessor Programming**—Machine language, assembly language, or higher-level languages? Editors, assemblers, compilers, interpreters. Flowcharting and documentation. Programming and debugging strategies. (Chap. 6, Vol. 1)
5. **April 4—A Few Examples of Microprocessor Applications**—Key microprocessor characteristics and classifications. Survey of some popular microprocessors. How to select (and how *not* to select) a microprocessor. (Vol. II)
Instructor for the first five lectures is Dr. R.J. Borrmann, Manhattan College.
6. **April 11—Hardware Decision**—Selection of processor. Significance of software design. Structuring a system analysis team.
7. **April 18—Memory System**—Input-output equipment. Extended Arithmetic Logic units. Multiprocessor.
8. **April 25—Effect of Limited Addressing Structure of Microprocessor on Data Manipulation**—Basic data structure. Software implementation with hardware assistance. Control structure. Summary.
9. **May 2—Structural Programming Discipline**—Software generation model. Currently available Microcomputer software. Support software for Microprogramming.
10. **May 9—Debugging**—System problems. Acceptance test procedure. Patching fundamentals. Documentation that paces development.
Instructor for lectures 6 thru 10 to be announced.

STUDY GROUP NO. 7
MONEY MANAGEMENT

TUESDAYS, 6:00-8:00 PM, Starting February 22, 1977
Roger Smith Hotel, De Lima Suite, 16th Floor
Lexington Ave. & 47th St., New York, N.Y. 10017

Instructor: *Robert E. Mendoza*
Public Service Electric & Gas Co.
Newark, N.J.

Group Sponsor: *Kurt Herzog*
Port Authority of N.Y. & N.J.
(212) 466-4203

Group Coordinator: *Alex Korn*
Stone & Webster Eng. Corp.
(212) 760-2036

The purpose of the "Money Management" Study Group is to develop an understanding of the time cost of money by developing a fundamental knowledge of financial mathematics.

1. **February 22—Purpose of a Money Management Course**—Meaning and Definition of Interest, Equivalence, Financial Tables.
2. **March 1—The Magic of Compounding**—The "Compound Amount" Formula, Use of Compound Amount Tables, Problems Concerning Growth of Money with Interest.
3. **March 8—More Magic of Compounding**—The "Series Compound Amount" Formula, Use of Series Compound Amount Tables, Problems Concerning Growth of Periodic Deposits of Money with Interest.
4. **March 15—Partial Payment Plans**—The Partial Payment (Capital Recovery) Formula, Use of Partial Payment Tables (Capital Recovery), Problems Concerning Payment of Debts.
5. **March 22—Additional Problems Concerning Growth of Money and Payment of Debts.**
6. **March 29—The Present Value (Worth) of a Future Payment**—Derivation of "Present Worth" Formula, Use of Present Worth Tables, Problems Concerning the Present Value (Worth) of a Future Payment.
7. **April 5—Discussion of the Present Value (Worth) of a Series of Future Payments**—Derivation of "Series Present Worth" Formula, Use of Series Present Worth Tables, Problems Concerning the Present Value (Worth) of a Series of Future Payments.
8. **April 12—Amount of Deposits to Build to a Certain Sum (Sinking Funds)**—The "Sinking Fund" Formula.
9. **April 19—Discussion of Bonds.**
10. **April 26—Sinking Fund Depreciation.**

LL GROUPS ARE OPEN TO THE PUBLIC

M — Special Study Groups

SPRING 1977

STUDY GROUP NO. 8
BUILDING AUTOMATION SYSTEMS APPLICATIONS

WEDNESDAYS, 6:00-8:00 PM, Starting February 23, 1977

Union Carbide Corp. Auditorium 3rd Floor
270 Park Ave., New York, N.Y. 10007

Group Sponsor: *Michael L. Casella*
J.R. Loring & Assoc., Inc.
(212) 563-7400

Group Coordinator: *Gerard G. Boyle*
Micro Switch
(201) 233-9200

This course is designed for Engineering Consultants, Architects, Contractors and Building Managers. The lecture series will demonstrate how, through the use of automation, a building can be managed more efficiently, more safely and with lower life-cycle cost.

1. **February 23—Introduction**—An overview of the current state of non-automated commercial and industrial buildings with respect to efficiency of energy and management as well as to the safety of occupants and security of assets.
Speaker from Geo-Energy, Ltd.
2. **March 2—System Introduction**—The vocabulary, components, building blocks and various communication techniques of automation systems will be discussed.
Speaker from Powers Regulator
3. **March 9—Energy Management, Part 1: Electrical Systems**—Introduction to electric rate structures. Simple and advanced techniques to limit electrical consumption and its peak demand by computer.
Speaker from Powers Regulator
4. **March 16—Energy Management, Part 2—Basic HVAC Controls**—Open loop environmental control of fans, pumps, compressors, temperature, pressure, humidity, valves and dampers via computer.
Speakers from Honeywell and Johnson Control
5. **March 23—Energy Management, Part 3—Advanced HVAC Systems**—Discussion to include the computer use of enthalpy controlled outside air dampers, discharge air temperature controls for cooling coils and heating coils, optimization techniques for boilers and chillers, variable volume air valves, using input and output signals of both the digital and analog type.
Speakers from Honeywell and Johnson Control
6. **March 30—Fire, Security and Managerial Systems**—The discussion will show how automation can achieve fire protection, security, surveillance, maintenance supervision, and provide a public address system conforming to Local Law 5.
Speaker from Honeywell
7. **April 6—Software-Terminal Equipment and Applications**—Standard and custom software packages, modules, consoles, and the design of secondary control centers will be discussed.
Speaker from Honeywell
8. **April 13—Economic Analysis**—Analysis of automation investment or potential savings from energy conservation, peak demand limiting, maintenance monitoring, and manpower efficiency.
Speaker from Veterans Administration
9. **April 20—Summary**—How to determine your automation requirements and make a cost effective choice. Special attention will be paid to retrofit considerations.
Speaker from Honeywell

STUDY GROUP NO. 9
LIGHTING—THEORY AND APPLICATION

Thursdays, 6:00-8:00 PM, Starting February 24, 1977

Roger Smith Hotel, De Lima Suite 16th Floor
Lexington Ave. & 47th St., New York, N.Y. 10017

Group Sponsor: *Kurt Herzog*
Port Authority of N.Y. & N.J.
(212) 466-4203

Group Coordinator: *Godofredo Lara*
Port Authority of N.Y. & N.J.
(212) 466-8719

This 10 session study group is presented for engineers and architects who are designing and specifying lighting systems. The lectures will cover sound engineering principles, to select and lay-out safe and reliable lighting installations economically. Examples of specific lighting designs will be discussed stressing aesthetics and economy.

1. **February 24—Visual Effectiveness and Theory**
Speaker from Holophane Co.
2. **March 3—Calculations**—*Speaker from Holophane Co.*
3. **March 10—Light Sources**
Speaker from General Electric
4. **March 17—Industrial Lighting Applications**
Speaker from General Electric
5. **March 24—Commercial and Institutional Lighting**
Speaker from Lightolier
6. **March 31—Theater Lighting**
Speaker from Strand-Century
7. **April 7—Accent and Church Lighting**
Speaker from Rambusch Co.
8. **April 14—Integrated Lighting and Ceilings**
Speaker from Johns Mansville
9. **April 21—Outdoor Lighting and Flood Lighting**
Speaker from Crouse Hinds
10. **April 28—Lighting and Energy Saving**
Speaker from Westinghouse

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

NY&LI Sections, IEEE

Power and Industrial Div.

Metropolitan Section

ASME

EDUCATION PROGRAM—SPRING 1977
SPECIAL STUDY GROUPS

REGISTRATION INFORMATION FOR SPECIAL STUDY GROUPS

FEE PER GROUP	PAYABLE TO	MAIL TO
$55 each for members, IEEE, ASME; $70 each for all others	"POWER & IND. GROUP N.Y. SECTION IEEE"	Kurt Herzog, Chairman Education Committee, IEEE Port Authority of New York & New Jersey One World Trade Center, Rm. 57E New York, New York 10048

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

Kurt Herzog, Chairman
Education Committee, IEEE
Port Authority of New York & New Jersey
One World Trade Center, Rm. 57E
New York, New York 10048
(212) 466-4203

NOTE

Fill out one registration form for each group and mail with payment
Registrations will be accepted at first and second sessions to the limit of room capacity.

REGISTRATION FORM

Name (printed) .....
Firm ..... Position .....
Business Address .....
..... Phone No. .....
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

REGISTRATION FORM

Name (printed) .....
Firm ..... Position .....
Business Address .....
..... Phone No. .....
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

North Jersey IEEE Meeting:
USAB: Its Effects On IEEE And You

The Socio-Economics Committee presents Joel Snyder as our guest speaker for our Feb. 22nd. meeting. His subject will be "USAB and Its Effect on IEEE and You." The United States Activities Board (USAB) is the branch of the IEEE concerned with the professional aspirations of our engineering members.

JOEL SNYDER

Mr. Snyder has an extensive history of active leadership and support of IEEE activities. He is currently a Member-At-Large of the USAB and served at its Controller during 1976. He is also a member of the USAB Steering Committee and the Institute Budget Advisory Committee. Mr. Snyder had complete fiscal responsibility for USAB and acts as a consultant to several USAB projects. He also served as Region I Professional Activities Committee (PAC) Coordinator.

Mr. Snyder was Chairman of USAB's Ethics and Employment Practices committee and was instrumental in formulating, the IEEE Code of Ethics and the resolution for the filing of an Amicus Curiae Brief in the BART case.

Since early 1963, Mr. Snyder has been a consulting engineer specializing in digital techniques and signal processing. His expertise includes data acquisition, data transmission, computer circuitry and logic, and computer application.

Prior to entering private practive, Mr. Snyder was an applications engineer and senior project engineer at Harman Kardon, Inc., Data Systems Division, an electronics engineer for Airborne Instruments Laboratory, and a mathematician and programmer at I.B.M.

Mr. Snyder holds B.E.E. and M.S.E.E. degrees from the P.I.N.Y., 1956 and 1964, respectively, and is a licensed Professional Engineer. He is a Senior Member of the IEEE and is active in local and national affairs.

Coffee And Refreshments Will Be Served.

Contact George Fen at (201) 667-4637, or Richard Tax at (201) 391-9075 for any further information.

Time: 7:30 PM, Tues. February 22, 1977.
Place: ITT Conference Center, 500 Washington Ave., Nutley, N. J.
Regular meetings of the Socio-Economics Committee will be held on the second Wednesday of each month at the same address.

North Jersey IEEE Meeting:
Industrial Commercial Products' Reliability

The North Jersey Section Reliability Chapter will hold a joint meeting with the Society of Women Engineers on Wednesday, February 23, 1977, at the Bethwood. The guest speaker will be Ms. Naomi McAffee, a member of the Westinghouse Corporate Staff.

Ms. McAfee will present the various aspects of the Reliability and Quality of industrial commercial products.

Ms. McAffee is presently involved in the coordination of strategic resources, previously she headed the reliability and Q.A. group at Westinghouse.

For more information: D. Bogush, (201) 256-4000, ext. 3757.

Time: 7:30 PM, Wednesday, February 23, 1977.
Place: The Bethwood, Lackawanna Ave., Totowa, N. J.
Pre-Meeting Dinner: 6:30 PM.

North Jersey IEEE Meeting:
Underground Switchgear Padmount & Submersible

The North Jersey IEEE Power Engineering Society meeting on February 23 will address the subject: "Underground Switchgear–Padmount and Submersible." The speaker will be Mr. Richard Prusiewicz, regional engineer, A. B. Chance Co.

Rich will review the present systems available for underground switchgear, such as air, oil, SF_6 and vacuum, and discuss the advantages and disadvantages of each. He will describe the design and operation of the vacuum bottle and review the present availability of pad-mounted and submersible vacuum switchgear.

Mr. Prusiewicz received his Bachelor of Electrical Engineering Degree in 1971 from Villanova University and his MBA in Industrial Management in 1974 from Fairleigh Dickinson University. Rich has worked for Orange and Rockland Utilities for three years in Standards System Protection and was a Division Engineer.

For the past two years he has been a Regional Engineer for the A. B. Chance Co., and has traveled the north eastern part of the United States working with many utility companies on switching and protection systems.

Time: 4 PM, Wednesday, February 23, 1977.
Place: Jersey Central Power & Light, Punchbowl Room, Madison Ave. at Punchbowl Rd., Morristown, N. J. 07960.
Directions: The Jersey Cental Power & Light building is located on Rt. 24 approximately 2 miles south of the intersection of Interstate route 287.

North Jersey IEEE Meeting: Progress In Solid-State Microwave Devices

The North Jersey MTT/AP Chapter meeting "Progress in Microwave Solid-State Devices Reviewed" by Dr. Fred Sterzer, IEEE 1976/77 MTTS National Lecturer, will be held February 15, 1977 at 8 PM at the ITT "Chart Room," Nutley, N. J.

Remarkable progress is being made in improving the performance of Microwave solid-state devices used for signal processing and power generation. As a result, microwave solid-state amplifiers and oscillators are replacing low-noise and medium power traveling-wave tubes and backward wave oscillators, and entirely new applications for microwave technologies are being created.

Replacing low-noise and medium power TWTs and BWOs with solid-state amplifiers and oscillators has been an important goal of microwave research for many years. At the lower microwave frequencies, amplifiers using silicon bipolar transistors began to replace TWTs several years ago, but attempts to replace TWTs at the higher microwave frequencies with two-terminal negative resistance amplifiers were, in general, not successful. During the past two years, however, GaAs field effect transistors have become available that make possible the design of solid-state amplifiers that can compete successfully with TWTs in many applications at frequencies as high as 18 GHz. As far as BWOs are concerned, they are rapidly being replaced by varactor-tuned transistor or transferred electron oscillators followed by medium power broadband transistor amplifiers.

One of the most interesting new areas where solid-state microwave technologies are being applied is digital computing at multigigabit rates. Two types of microwave solid-state devices - GaAs FETs and transferred electron devices-show promise of being able to process digital information at rates that are several times as high as the highest rates possible with the fastest silicon digital devices. There are many important uses for gigabit computing circuits, including applications in radar, electronic warfare, and communications.

Fred Sterzer received the B.S. in Physics from the City College of New York in 1951, and the M.S. and Ph.D. degrees in Physics from New York University in 1952 and 1955, respectively. His Ph.D. thesis was on microwave spectroscopy. He joined the RCA Corporation in 1954 and has worked there on the development of travelling-wave tubes, optical components, high-speed logic, and microwave solid-state devices and circuits. He is currently Director of the Microwave Technology Center at the RCA Laboratories where he directs R&D and pilot production of microwave and high-speed logic components and subsystems. Dr. Sterzer is a member of Phi Beta Kappa, Sigma Xi, and the American Physical Society. He is the author of over 55 papers and he holds 27 patents.

For further information contact E. W. Niemiec, ITT DCD, at (201) 284-2323 or (201) 239-4389 (home).

Time: 8 PM, Tuesday, February 15, 1977.
Place: ITT "Chart Room," 500 Washington Ave., Nutley, N. J.
Pre-Meeting Dinner: 6 PM, Ramada Inn, Rt. 3, Clifton, N. J. (Eastbound side).

Film Carriers For Assembly of ICs

Film Carriers for the Assembly of ICs will be discussed by F.E. Scheline, of RCA Solid State Div., Somerville, N. J., at the February 17, 1977 meeting of the Joint Electron Devices and Parts, Hybrids and Packaging Groups, New York Metropolitan Area Chapter.

The film carrier is an interconnect system for chips and packages that offers an alternative to flying wire bonding. It brings automation to the most labor intensive step in the process of fabricating a semiconductor device. It brings a new form for handling semiconductor chips. And it brings new capabilities for post bond testing and subsequent packaging.

Fred E. Scheline, engineering leader, packaging technology for ICs at RCA, Somerville, has been involved in development of advanced assembly systems for the past six years.

Time: 8 PM, Thursday, February 17, 1977.
Place: ITT Labs, Nutley, N. J.
Pre-Meeting Dinner: 6 PM, Jade Fountain Restaurant, 602 Ridge Rd., (Rt. 17) North Arlington, N. J.

Clinical Engineer's Response To New Codes

The Metropolitan New York Chapter of the IEEE Group on Electronics in Medicine and Biology (GEMB) announces the following program for Wednesday, February 2, 1977 at 7:30 PM: "The Clinical Engineer's Response to the New Requirements and Codes" (open discussion).

Chairperson will be Mr. Brian Parker, director of bioengineering, Montefiore Hospital Medical Center, Bronx, N.Y.

For further information, contact W. H. Buschbaum, N. Y. Metro GEMB vice chairperson, at (212) 240-5594 (Brookdale Hospital).

Time: 7:30 PM, Wednesday, February 2, 1977.
Place: Rockefeller University, South Lab., Rm. 204, 66th St. & York Ave., N. Y. C.
Pre-Meeting Dinner: 6 PM, Tower Cafeteria, Rockefeller University, 64th St. & York Ave., N. Y. C.
Advance Notice: March 2, 1977 meeting features "An Overview of CT X-Ray Scanners," by Dr. C. H. Marshall, NYU Medical Center.

Energy Conservation

The New York and Long Island Section of the Joint Power Engineering Society and Industry Application Society will sponsor a general meeting on Lighting in Partnership with Business toward Energy Conservation.

Mr. Ben Avery, specification engineer of the Lamp Division of General Electric Co., will discuss the role of lighting in the conservation of energy and its effects on productivity and the investment dollar. He will explain how lighting can be employed as a partner of business to conserve power and optimize income.

Mr. David Jae, president of David Jae & Co., representative of Developmental Sciences, Inc., will present an analysis of methods of optimizing energy conservation in existing fluorescent lighting installations where illumination levels can be reduced.

Time: 6 PM, Wednesday, February 16, 1977.
Place: One World Trade Center, Rm. 625, N. Y. C.
Refreshments: 5:30 PM.

Socio Economics News

By Richard Tax, Chairman
Socio Economics Committee

This article is continued from our Jan. 1977 issue. The following article from " Electronics" does provide answers to some of the questions.

EMC TO CONTINUE DEMAND FORECASTS

Despite criticism that its studies of manpower demand actually contribute to an oversupply of engineers, the Engineering Manpower Commission seems determined to disseminate data that, by its own admission, have limited validity. The EMC, the research arm of the Engineers Joint Council that is supported by 36 professional societies, at its latest meeting turned back all proposals to discontinue its demand projections or to modify its method of making them public.

About two-thirds of EMC's 41 members had met to hear an interim report assessing various demand surveys from its ad hoc committee on supply and demand. The committee was formed initially to investigate charges by the National Society of Professional Engineers that the studies endanger engineering careers [Electronics, March 4, p. 67]. The report was to have been an informal response to the charges and to serve as a guide in determining the limitations of demand surveys [Electronics, Sept. 16, p. 75].

Delay. However, not only did the EMC overwhelmingly turn down motions calling for it to stop making supply and demand forecasts, but it also declined to postpone making projections until a valid model was developed. And it put off making a formal report until next month's meeting. The delay was attributed to illness and workload of committee members, but it was viewed by critics as further foot-dragging.

"EMC is still in the demand business," says David Reyes-Guerra, executive director of the Engineers' Council for Professional Development and chairman of the ad hoc committee. The interim report, he notes, came up with the conclusion that no one can really project demand. "The models available, at best, provide a 1 – 2 year accurate predictive value."

Reyes-Guerra, taking a middle ground in the controversy, says the problem with demand studies is that "people who know little about their caveats are using them as guides. Publishing demand data whose rationale is not known is something we just don't want to do."

Grumman Aerospace Corp.'s Art Gilmore, EMC's chairman, says: "Although there are lots of models around, all of them are highly controversial. We aren't confident that any validated model could be developed in a reasonable time. But that doesn't mean we can't print what people from a couple of hundred manufacturers indicate as to how many they intend to hire over a period of time."

However, the group has decided to review its policy on demand studies. But for now, Gilmore adds, "EMC is still free to do studies of demand information that is completely qualified." That qualifier, he says, is being worked on and will be in a policy statement due at a Nov. 16 meeting.

Criticism. Robert A. Rivers, president of Aircom Inc. of Union, N. H., and an IEEE representative to the EMC, criticizes the rejection of his proposals to get out of the forecasting business. "This indicates a complete disregard on their part for the need to stop promoting engineering enrollments and the tremendous opportunities in engineering."

EMC's interim report indicates that long-term models for determining demand shouldn't be used publicly since the future is determined by policy decisions that haven't been made yet. However, Rivers adds, "the majority of the commission seems to want to generate this baloney. The predominant attitude of the group is that they don't want to stop these projections."

One of the supporters of Rivers' proposals, Hans C. Cherney, a personnel administrator at International Business Machines Corp. in Poughkeepsie, N. Y., and vice chairman of the IEEE's U.S. Activities Board, asserts that the vote "highlights exactly what the problem is with EMC and the EJC. They do not represent the interests of the engineering profession. When they voted, it was for the good of the company, educational institution or employment office they work for. They admitted that the information they have is bad, but that they'd rather have bad information than no information at all."

Here, David Reyes-Guerra, executive director ECPD, blames the EMC for false predictions but, in the ECPD booklet, EC 68 4/75, ECPD is also in the demand business and further, promises careers in engineering. (see Jan. 1977 Newsletter)

Art Gilmore, EMC's chairman, passed the buck to the manufacturers. He might add how many engineers these companies intend to layoff during the same period of time. As each one blames the other, the propaganda continues to permeate our society and the situation for engineers gets worse. But, alas, they have closed the loop.

W. B. Wood, of Exxon, a manufacturer, quotes the Handbook. The Handbook refers to the ECPD, EMC, and IEEE for its source. ECPD points to EMC, and EMC states the manufacturers told us there was a shortage. And 'round and 'round we go.

This year a total of only 21,425 votes elected Robert M. Saunders, a professor, to the office of president of IEEE. Isn't this ridiculous? We now have a man from an educational profession representing people from an engineering profession. This, clearly, never would have happened if more engineers belonged to the IEEE and took some interest in their professional activities, but, it is done. Now, do you really believe that Saunders is about to open the loop and put an end to the deceptive manner of student recruiting. Definitely not, at least not before another method is formulated.

It looks like the buck stops with you. No one else is left to put an end to it and therefore no one else is left to solve the rest of our professional problems. We must solve them ourselves. With typical engineering precision we must define the problem, collect, verify and analyze the facts, and provide the solution. This will take time and manpower, but at least your efforts will be rewarded by providing you with your own professional organization.

If you want IEEE to represent you in your fight for professionalism, you must make IEEE aware of your concern.

There are at least 100 good reasons for attending Electro/77.

Here are just ten of them.

1 Electro puts the new electronics all together for you, at one time, in one place. (You can see *all* the new logic analyzers in action in the same afternoon, for example.)

2 Electro presents a tough, realistic professional program "live"—and backs it up with full manuscript preprints and audio tapes, both available on-the-spot at the convention.

3 Electro departmentalizes 550 exhibits by product category. You don't have to hunt-and-peck for the companies you want to see—nine times out of ten, you'll find them side-by-side in the same "department."

4 Electro program sessions are designed to help engineers in their professional assignments *now!* If it won't be relevant in the next 18 months, Electro won't present it.

5 Electro takes you out of line and into the action quickly, with a computerized registration system that gives you an embossed plastic "credit card" for requesting technical information on the show floor.

6 Electro presents the 20 best new technical films available anywhere, shown every day in our Film Theater at no charge.

7 When you ask questions about a new system at Electro, your answer comes from engineers who helped design the system, and who are there to discuss the performance capabilities with you.

8 Electro is a show and convention system that aims to serve the working engineer-visitor—from the pre-published manuscripts to the cross-referenced directory, to the carpeted aisles. Electro is a non-profit presentation of regional elements of IEEE and ERA, and its only business is to promulgate the exchange of software and hardware information.

9 Your Electro/77 registration card gives you a credential for the entire show and convention—all the exhibits, all the sessions, all the films, for all three days of Electro. IEEE members register for $6; non-members for $9. No extra charges or add-ons.

10 With 27 hours of live product demonstration, 100 hours of good technical programming, and 18 hours of new technical motion pictures, Electro is your best information-transfer vehicle of the year in the eastern United States.
Electro/77: The International Electronics Convention in New York.

Electro77

New York Coliseum/Hotel Americana
April 19-21, 1977

Sponsors: METSAC Sections, and the Central New England Council, Region 1, IEEE; New York and New England Chapters, ERA.

Produced by Electrical and Electronics Exhibitions Inc., a non-profit corporation.

Further information: Electro/77, 999 North Sepulveda Boulevard, El Segundo, CA 90245 Telephone: (213)772-2965