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The IEEE

# Newsletter

The Magazine of the North Jersey Section

## NORTH JERSEY SECTION ANNUAL STUDENTS NIGHT "OPPORTUNITIES IN ELECTRICAL ENGINEERING"

NEWARK COLLEGE OF ENGINEERING

December 8, 1970

Dinner: 6:30

Discussion: 7:30

December, 1970



# North Jersey Section Annual Students Night

Chairman Nicholas Ginga and his Student Branch at the Newark College of Engineering are proud to be hosting the 1970 North Jersey Section Annual Students' Night, to be held on Tuesday, December 8, 1970. The theme, "Opportunities in Electrical Engineering," is worthy of attention when considering the present economic condition in New Jersey today.

The topics, the speakers, and their affiliations are as follows:

*"Consumer Products," Maurice Norton, General Electric*

*"Computers," Allan Schleicher, IBM, Springfield Division*

*"Communications," Sam Bayer, President, Microwave Power Devices Corporation*

*"Power," Joseph O'Grady, Public Service Gas & Electric Co., and past Chairman, North Jersey Section*


*"Environmental Control," (Speaker to be announced.)*

The modest \$.75 admission fee will include the Section subsidized buffet dinner to be held in the N. C. E. Cafeteria at 6:30 P.M. The meeting will commence at 7:30 P.M., with questions, coffee, cake, and informal discussions scheduled for an 8:45 P.M. start.

The N. C. E. Day Section Students Branch Officers assisting Chairman Nicholas Ginga, incidentally, a Veteran of the Indo-China Hostilities, include: Vice Chairman Walter Filidski, Corresponding Secretary Dennis Skowranski, and Treasurer Daniel Tarrant, Jr.

*Time:* Tuesday, Dec. 8; 7:30 P.M.

*Place:* Newark College of Engineering  
*Pre-Meeting Dinner:* 6:30 P.M., N. C. E. Cafeteria.

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## MEETINGS CALENDAR

Wednesday, December 2

T & D Group—Application of Computers to T & D Problems, Richard Briesemeister, David Hawkins and Frank Orawiec, Speakers, Union Carbide Corporation, Meeting Room, 270 Park Avenue, N. Y. C. 6:30-8:30 P.M.

Wednesday, December 2 and Thursday, December 3

Electron Devices Group—1970 IEEE Conference on Display Devices, United Engineering Center, 345 E. 47th St., N. Y. C.

Wednesday, December 2 through Friday, December 4

U. S. Army Electronics Command—International Wire and Cable Symposium, Shelburne Hotel, Atlantic City, N. J.

Thursday, December 3

Reliability Group of New York/Long Island Chapter—The Role of Reliability in PAN-AM Maintenance Operations and Tour of 747 Aircraft and Facilities, PAN-AM Maintenance Building, JFK Airport. 7:00 P.M.

Tuesday, December 8

North Jersey Section Annual Students' Night—Opportunities in Electrical Engineering, Maurice Norton, Allan Schleicher, Sam Bayer, and Joseph O'Grady, Speakers, Newark College of Engineering, Newark, N. J. 7:30 P.M. Pre-Meeting Dinner at N. C. E. Cafeteria, 6:30 P.M.

Wednesday, December 9

PG-EMB Group—Ultrasonic Techniques in Medical Diagnosis, Dr. George Myers, Speaker, Rockefeller University, South Lab Building, Room 204, York Avenue and 66th Street, N. Y. C. 8:00 P.M. Pre-Meeting Dinner, Abby Aldrich Hall, Rockefeller University, 6:00 P.M.

Thursday, December 10

North Jersey Section of GMTT/GA-P—Noise Performance Factors in Communications Systems, W. W. Mumford, Speaker, Arnold Auditorium, Bell Laboratories, Murray Hill, N. J. 8:15 P.M. Pre-Meeting Dinner, Wally's Watchung, N. J. 6:15 P.M.

Saturday, December 19

Education Department of Newark Museum—Planetarium Shows at Newark Museum, second of series for IEEE members, Newark Museum, 43-49 Washington Street, Newark, N. J. 3:00 P.M.

Monday, December 21

North Jersey Automatic Control Group—J. H. Mulligan, Jr., Speaker, Room 1H-009, Bell Telephone Laboratories, Whippany Road, Whippany, N. J. 8:00 P.M. Pre-Meeting Dinner, Rod's Ranch House, Madison Avenue (Route 24), Convent Station, N. J. 6:00 P.M.

Wednesday, January 13

Group on Engineering in Medicine and Biology—Electrocardiography, Dr. David B. Geselowitz, Speaker, Rockefeller University, South Lab Building, Room 204, York Avenue and 66th Street, N. Y. C. 8:00 P.M. Pre-Meeting Dinner, Abby Aldrich Hall, Rockefeller University, 6:00 P.M.

Thursday, January 14

New York Metropolitan Area Chapter of Electron Devices Group—Silicon Diode Array Camera Tubes, R. L. Rodgers, Speaker, General Telephone and Electronics, 208-20 Willets Point Boulevard, Bayside, L. I., N. Y. 8:00 P.M. Pre-Meeting Dinner, Kam Fong Restaurant, 19-11 Francis Lewis Boulevard, Whitestone, N. Y. 6:00 P.M.



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## NEWSLETTER STAFF

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### REPORT ALL ADDRESS CHANGES TO:

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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.

## NORTH JERSEY SECTION OFFICERS 1970-1971



H. E. Blaicher, Jr.

Robert G. Sokalski

Chairman ..... Herbert E. Blaicher, Jr.  
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## Engineering, Society and the IEEE

On December 21, 1970, at 8:00 P.M., the North Jersey Automatic Control Group will sponsor a joint meeting with the North Jersey Section. The speaker for the evening will be Dr. J. H. Mulligan, Jr., Executive Secretary of the National Academy of Engineering.



### About the Talk

The high standard of living attainable in today's society has been made possible to a large degree by the myriad contributions of the engineering profession. Recently, however, the cumulative effect of a rapidly changing society, including expensive applications of technology, has focused on the need for the engineer to contribute to the solution of societal problems of substantially greater scope than normally associated with engineering assignments. New challenges to the profession associated with this class of problems will be outlined and various mechanisms by which the talents of the engineer can be combined with those from other professions will be considered. Examples of progress in this area will be given, including some recent IEEE activities.

### About the Speaker

J. H. Mulligan, Jr., received the B.E.E. and E.E. degrees from Cooper Union School of Engineering in 1943 and 1947, respectively, the M.S. degree from Stevens Institute of Technology in 1945 and the Ph.D. degree from Columbia in 1948. He was made Executive Secretary of the National Academy of Engineering in August of 1968.

Prior to that time, he was on the faculty of the Electrical Engineering Department of New York University since 1949 and its chairman from 1962 to 1968. Previously, he worked in the Transmission Development Department of Bell Telephone Laboratories and as a member of

the combined research group of the Naval Research Laboratory where he was chief Engineer of the Television Transmitter Division. His recent research has been in the areas of distributed networks, active networks and feedback amplifiers.

Dr. Mulligan has been a member of several AIEE-IRE and IEEE technical committees. He is currently Vice-President and previously was Vice-President for Technical Activities of IEEE.

*Time:* Monday, December 21; 8:00 P.M.

*Place:* Room 1H-009, Bell Telephone Laboratories, Whippany Road, Whippany, N.J.

*Pre-Meeting Dinner:* 6:00 P.M., Rod's Ranch House, Madison Avenue (Route 24), Convent Station, N. J.

*For Further Information, Contact:* G. A. Ford, Bell Telephone Laboratories, Whippany, N. J. (201) 386-5103.

## Airport & 747 Tour

The Reliability Group of IEEE New York/Long Island Chapter will hold a meeting Thursday, December 3, 1970, at JFK Airport, PAN-AM Maintenance building. There will be a presentation of "The Role of Reliability in PAN-AM Maintenance Operations" followed by a guided tour of the PAN-AM 747 aircraft and the overhaul and repair facilities.

*Time:* Thursday, Dec. 3, 1970; Presentation, 7:00 P.M.; Guided Tour, 8:00 P.M.

*Place:* JFK Airport, PAN-AM Maintenance Building.

## Ultrasonic Techniques in Medical Diagnosis Meeting Topic

The PG-EMB Group will have as its speaker Dr. George Myers of Riverside Research Institute at the December 9 meeting. Dr. Myers' topic will be "Ultrasonic Techniques in Medical Diagnosis."

*Time:* Wednesday, December 9; 8:00 P.M.

*Place:* Rockefeller University, South Lab Building, Room 204, York Avenue and 66th Street, N. Y. C.

*Pre-Meeting Dinner:* Abby Aldrich Hall, Rockefeller University; 6:00 P.M.



## Newark Museum Planetarium Shows

The Education Department of the Newark Museum has reserved fifty seats for Saturday performances at each of their monthly planetarium shows from November, 1970 to June, 1971, inclusive. Children must be at least seven years old. Shows start at 3:00 P.M. but members are advised to be early to receive their reserved tickets which will cost twenty-five cents for adults and fifteen cents for children. The tickets are to be paid for when received at the Museum which is located at 43-49 Washington Street, Newark, N.J. The shows will last approximately one-half hour. After each show, members and their families are invited to enjoy the many free exhibits and demonstrations which are available in the museum. For example, the "Moon Rocks" will be on display at the time of the November Planetarium show. The days reserved for IEEE are: November 28, 1970, December 19, 1970, January 30, 1971, February 27, 1971, March 27, 1971, April 24, 1971, May 29, 1971, and June 26, 1971. The November 28 show is entitled "Invaders from the

Past," and the December 19 show is entitled "Yuletide Stars." Titles of subsequent shows will be published in later issues of *The Newsletter*.

Use the form below to register for any of the above shows. Additional registration forms will appear in future issues of *The Newsletter*. Please include a stamped, self-addressed envelope when mailing in your registration so that we may notify the people who receive reservations which will be allocated on a first come-first serve basis. Registration forms must be received at least one week in advance of "show date."

Please send filled in registration and self-addressed envelope to:

Wm. T. Kelly, Room 8335M  
PSE&G Co., 80 Park Place  
Newark, N. J. 07101

Name.....

Address.....

No. of Adults.....No. of Children.....

Date(s) of Planetarium Show.....

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## Noise Performance In Communications

The December meeting of the North Jersey Section of GMTT/G-AP will feature a talk on "Noise Performance Factors in Communications Systems" by Mr. W. W. Mumford.

### About the Talk

In any communications system, the output noise is a disturbing influence. In order to evaluate the performance of receivers in an operating environment and to determine their capability of handling weak signals, an operating noise temperature has been defined. It utilizes the concepts of Effective Input Noise Temperature of the generator.

The application of these concepts to single and multiple response receivers will be discussed. Methods of measurement will be derived and the relationship to several definitions of Noise Figure will be pointed out.

### About the Speaker

William W. Mumford is a retired member of the Technical Staff of the Bell Laboratories. He serves as an advisor on Radio Frequency Radiation Safety for the President's Office of Telecommunications Management and the American National Standards Institute.

Mr. Mumford joined Bell Laboratories shortly after receiving his A.B. degree in mathematics and physics from Willamette University in 1930. He initially engaged in research work on VHF radio propagation and later was concerned with radio relay links for television.

In 1953 he was appointed supervisor of a group concerned with microwave radar problems and with techniques for improving noise figures of receivers. He later was in charge of exploratory radar development and became a consulting supervisor on Mobile Radio shortly before his retirement in July, 1970.

Mr. Mumford holds 19 patents, is co-author of two books, and has written numerous technical articles.

Mr. Mumford is a Fellow and Life Member of the IEEE and in 1967 received the IEEE's Morris E. Leeds Award.

*Time:* Thursday, December 10; 8:15 P.M.  
*Place:* Arnold Auditorium, Bell Laboratories, Murray Hill, N. J.

*Pre-Meeting Dinner:* 6:15 P.M., Wally's, Watchung, N. J.





Power and Industrial Div.

# EDUCATIONAL PROGRAM — SPRING 1971

## REVIEW STUDY GROUPS — FOR PROFESSIONAL ENGINEER EXAMINATIONS

This program is designed to prepare candidates for Professional Engineering License examinations in New York. The material is consistent with the national type of exam used for the New York license examinations. Candidates for Part I and Part II should enroll in both Study Group No. 11 and No. 12. The New York State Board permits graduates of approved schools to take Parts I and II and qualify for "Engineer-in-Training." New York exams will be held in April and December. Please note that the spring course will be completed prior to the April exam.

ENDORSED BY NYSSPE

### BASIC ENGINEERING SCIENCES I (IEEE-ASME)

### STUDY GROUP NO. 11

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

MONDAYS, Starting January 4, 1971, 6:15-8:45 P.M., 12 Sessions

*Instructor:* O. Ondra, Professor of Civil Engineering

Auditorium, 19th fl., Consolidated Edison Co., 4 Irving Place, N. Y. C. (except 1st session in room 1701)

Manhattan College

### BASIC ENGINEERING SCIENCES II (ASME-IEEE)

### STUDY GROUP NO. 12

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

TUESDAYS, Starting January 5, 1971, 6:30-9:00 P.M., 12 Sessions

*Instructor:* A. Paulow

Auditorium, 19th fl., Consolidated Edison Co., 4 Irving Place, N. Y. C.

Consolidated Edison Co.

### ENGINEERING ECONOMICS AND PRACTICE (IEEE-ASME)

### STUDY GROUP NO. 13

Review for Engineering Economics Section of the N. Y. Exam. Review will cover economic comparisons, annual cost, present worth, and rate of return. Fixed and operating costs, accounting and cost analysis, depreciation, taxes, and valuations will also be reviewed.

THURSDAYS, Starting January 7, 1971, 6:15-8:45 P.M., 12 Sessions

*Instructor:* R. E. Mendoza, P. E.

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

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### MECHANICAL ENGINEERING (ASME)

### STUDY GROUP NO. 14

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

WEDNESDAYS, Starting January 6, 1971, 6:30-8:30 P.M., 12 Sessions

*Instructor:* M. Kurtz, P. E.

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

### ELECTRICAL ENGINEERING AND APPLICATIONS (IEEE)

### STUDY GROUP NO. 15

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

WEDNESDAYS, Starting January 6, 1971, 6:30-9:00 P.M., 12 Sessions

*Instructors:* L. E. Burnett, Consolidated Edison Co.

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

S. Sonsky, Queensborough Community College

## REGISTRATION INFORMATION

GROUPS #	FEES	PAYABLE TO	MAIL TO
11, 13	\$30 Members, IEEE, ASME, NYSSPE \$40 all others	"POWER & IND. GROUP N.Y. SECTION, IEEE	I. M. Berger, Vice Chairman Educational Committee, IEEE N. Y. C. Transit Authority, Rm. 1200 370 Jay St., Brooklyn, N. Y. 11201 Phone: (212) 852-5000, Ext. 4495
15	\$50 Members, IEEE, ASME, NYSSPE \$60 all others		
12, 14	\$30 Members, IEEE & ASME, NYSSPE \$40 all others	"ASME METROPOLITAN SECTION"	Clarence J. Owens, Educational Comm. ASME, Metropolitan Section Dept. of Hospitals, Bureau of Engineering & Maintenance 66 Leonard St., N. Y., N. Y. 10013 Phone: (212) 566-6940
16, 17, 18, 19	\$25 Members, IEEE, ASME, NYSSPE \$35 all others	"POWER & IND. GROUP, N. Y. SECTION IEEE"	R. Cappelli, Vice Chairman Educational Committee, IEEE Consolidated Edison Co., Rm. 1250-S 4 Irving Place, N. Y. C. 10003 Phone: (212) 460-4183





*STUDY GROUP NO. 16*  
**NUCLEAR POWER PLANT DESIGN  
& ENVIRONMENTAL CONTROL — PART II**  
**MONDAYS, 6:30 to 8:30 P.M., Starting February 15, 1971**

Consolidated Edison Co., Room 1425  
4 Irving Place  
New York, N. Y. 10003

Group Coordinator: Tom Kelly, P.E.  
Port of New York Authority  
Tel. (212) 620-7503  
Group Sponsor: E. N. Mercouris  
Gibbs & Hill, Inc.  
Tel. (212) 565-4300, Ext. 347  
Principal Instructor: F. D. Hutchinson, P.E.  
Gibbs & Hill, Inc.

This series of lectures is a continuation of Part I; however, registration of persons who did not attend Part I is also encouraged.

The Nuclear Section and a portion of the Environmental Control will be presented by F. D. Hutchinson, while the balance of environmental control and plants are as shown.

Notes authored by E. N. Mercouris for both sections will be distributed at the beginning of each session to supplement the lectures.

1. **February 15 — Introduction** — Impact on the environmental baseline of power generation, pollution & heat disposal.

*E. N. Mercouris, Gibbs & Hill, Inc.*

**Multiple Nuclear Power Stations** — Techniques for assessing and predicting effects of air and water pollutants.

2. **March 1 — Nuclear Power Plants** — Safeguards and environmental considerations.

*Saul Levine, Asst. Director, Office of Environmental Affairs, AEC*

**Gas & Smoke Plumes** — Effects of atmospheric turbulence on gas and multiple smoke plumes for power plants.

3. **March 8 — Biological Aspects & Shielding** — Radiation health protection, critical organ and whole body doses, MPC; Handbooks 59, 69 & 10 FCR 20. Cross sections, primary shields, gamma heating and metal-to-water geometrics.

4. **March 15 — HTGR & LMFBR Power Plants** — Principles, processes, control and components.

5. **March 22 — Fuel Cycles & Management** — Thorium-Uranium (Th-232 & U-233), Uranium-Plutonium (U-238 & PU-239), Uranium (U-235) fuel cycles, mining, conversion, enrichment, fabrication, irradiation and reprocessing & fuel costs.

6. **March 29 — Cooling Water Systems** — Water stabilization, corrosion, treatment and control of microorganisms.  
**Environmental Protection Systems** — River and sea coast heat disposals under the frame of New Jersey State Standards.

7. **April 5 — Nuclear Plant Accident Analyses** — Loss-of-(flow, load, power, coolant, cold water), rod, refueling and reactivity insertion accidents. Missiles, pipe whipping, boron dilution and adverse weather phenomena.

8. **April 12 — New NYC Water Quality Standards** —  
*Martin Lang, Asst. Commissioner & Director of Bureau of Water Pollution Control, Dept. of Water Resources*  
**Desalination Plants II** — Dual purpose Nuclear Plants.  
*Elias N. Mercouris, Gibbs & Hill, Inc.*

9. **April 19 — Engineered Safeguards Systems and AEC Licensing Procedure** — Safety Injection, core cooling, containment cooling, doped sprays, ventilation systems, containment isolation. 10 CFR 2, 10 CFR 50, ACRS, public hearings, preliminary and Final Safety Analysis Reports, Construction and Operation Licenses.

10. **April 26 — Stationary & Mobile Monitoring Stations** — Instrumentation, circuitry, measured parameters and interpretation.  
*Gerald Goldgraben, Manager of Field Operation, Bureau of Technical Services, Dept. of Air Resources*

11. **May 3 — Reactor Instrumentation & Control** — Control boards, in-core and out-of-core, monitors and neutron sources. On-line computers, inputs, routines, & plant performance. Digital monitors and analog variables.  
*E. N. Mercouris, Gibbs & Hill, Inc.*

12. **May 10 — Meteorology II & Off-Site Hazard Analysis** — Adverse weather phenomena. Whole body dose, thyroid dose limits. Exclusion distance, low population zone, 10 CFR 100, radiation direct & skyline.

**Field Trips**

**April 24 — Environmental Center**  
**May 8 — Marine Laboratory**

*Note: Part III of this series (scheduled for the Fall) will deal with the new generation of PWR, BWR, HTRG, LMFBR and zero-release plants with emphasis on the engineering, control, systems and construction for environmental management.*





## STUDY GROUP NO. 17

### CABLES FOR ELECTRIC POWER SYSTEMS

TUESDAYS, 6:30 to 8:30 P.M., Starting February 16, 1971

Consolidated Edison Co., Room 1701  
4 Irving Place  
New York, N. Y. 10003

Group Coordinator: A. Korn, Stone & Webster  
Tel. (212) 899-9000

Group Sponsor: W. Zolnowski  
Consolidated Edison Co.  
Tel. (212) 460-4635

This series covers the basic concepts in the design of cables, and cable accessories, for use in electric power systems. It will familiarize the student with the various types of cables that are available and their application.

1. **February 16 — Basic Cable Construction** — Basic construction of various types of cables from low voltage to transmission voltages.  
*C. C. Shackford, Reynolds Metal Co.*
2. **February 23 — Theory of Cable Splicing** — Discussion of the theory of cable splicing including the use of tapes and prefabricated methods.  
*E. Faye, Electimold Division of ESNA*
3. **March 2 — Cable Sheaths, Jacketing and Armoring** — Design and application of sheaths, jacketing, and armoring for electric cables.

4. **March 9 — Pipe-Type Cable** — Design of pipe-type cables including pumping and circulating plants.  
*E. Merrill, Phelps Dodge Copper Products Corp.*

5. **March 16 — Extruded Insulated Cables for Direct Burial and Duct Systems** — Design of polyethylene, cross-linked polyethylene, and EPR Cables. Advantages of these insulations over firmer types such as oil-impregnated paper.  
*D. Silver, General Cable Corp.*

6. **March 23 — Cable Characteristics and Loading** — Description of the basic cable characteristics that determine its rating. Basic calculations for rating cables.

7. **March 30 — Cable Accessories** — Design and application of various types of potheads. Description of materials used in terminating and splicing cables.

8. **April 6 — Design of Ducts and Manhole Systems** — Design includes types of material, arrangement of ducts and manholes, and limitations based on pulling and splicing of cables.  
*J. Zeller, Consolidated Edison Co.*

9. **April 13 — Fault Locating** — Description of methods and equipment used in locating faults on underground cables.  
*F. Figiel, Consolidated Edison Co.*

10. **April 20 — Research and Development in High Voltage Cables** — Discussion of new trends in cable design for high voltage applications.  
*W. Zolnowski, Consolidated Edison Co.*

## STUDY GROUP NO. 18

### INTRODUCTION TO FORTRAN IV PROGRAMMING

WEDNESDAYS, 6:30 to 8:30 P.M., Starting January 6, 1971

Consolidated Edison Company, Room 503  
4 Irving Place  
New York, N. Y. 10003

Group Coordinator: John Domorsky  
Automatic Switch  
Tel. (212) 344-3765

Instructor: D. Hawkins  
Consolidated Edison Co.

This is a basic FORTRAN programming series and no previous Computer experience is necessary. Homework problems and class problems will be used to aid the student in mastering the language.

1. **January 6 — Introduction to Digital Computer Systems**
2. **January 13 — Digital Arithmetic and Flow Charting Techniques**

3. **January 20 — Arithmetic Statements**
4. **January 27 — Control and Decision Statements**
5. **February 3 — Boolean Algebra and Complex Numbers**
6. **February 10 — Input, Output, and Format Statements**
7. **February 17 — Additional Types of Format Statements, Data Statements, and Basic System Subroutines**
8. **February 24 — Subprograms and Arrays**
9. **March 3 — Sequential and Direct Access Files**
10. **March 10 — Program Debugging and Computational Errors, Job Control Language**



N. Y. Section, IEEE



Power and Industrial Div.

# EDUCATIONAL PROGRAM — SPRING 1971

## Special Study Group

Metropolitan Section



STUDY GROUP NO. 19

ADVANCED COMPUTER TECHNIQUES II

THURSDAYS, 6:30 to 8:30 P.M., Starting February 18, 1971

Union Carbide Building  
3rd Floor Multipurpose Room  
270 Park Avenue  
New York, N. Y.

Group Coordinator: E. Fabri, Con Edison  
Tel. (212) 460-6072  
Group Sponsor: D. Hawkins  
Consolidated Edison Co.  
Tel. (212) 460-4214

This series will cover special programming and computer applications techniques.

1. **February 18 — Application of Minicomputers**  
Characteristics and application of minicomputers
2. **February 25 — Automatic Drafting Techniques**  
Equipment for computerized production of engineering drawings.  
*L. M. Green, Information Displays Inc.*
3. **March 4 — Use of XY Plotters**  
Programming techniques, plotter software and applications.  
*D. Hawkins, Consolidated Edison Company*
4. **March 11 — Data Bases & Project Management Techniques**  
How to set up and use large data bases; project management techniques for both related and unrelated activities.
5. **March 18 — Production Costing Models**  
Development of large fuel cost models for electric production with representation of fossil, nuclear, pump storage and gas turbine units.  
*H. Efrom, Consolidated Edison Company*
6. **March 25 — Corporate Models**  
Computer simulation techniques for modeling the business activities of large corporations.  
*A. Wood, Power Technologies Inc.*
7. **April 1 — Short Circuit Studies**  
Fault analysis techniques for commercial, industrial and utility systems.
8. **April 8 — Relay and Fuse Coordination**  
*A. Knable, American Electric Power Corporation*
9. **April 15 — Economic Dispatch Techniques**  
Computer techniques for optimum production and distribution of electric power.  
*Jorge Dopazo, American Electric Power Corporation*
10. **April 22 — Simulation Techniques for Engineering Problems**  
Introduction to GPSS and discussion of specific simulation models for engineering problems.  
*S. Tobon, Consolidated Edison Company*

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Study Group

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☐ ASME  
☐ OTHER  
☐ NON-MEMBER

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for membership in

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Admission Card No. ....

Refund Certificate No. ....

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

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

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Firm ..... Position .....  
Business Address .....  
Phone No. ....  
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Study Group

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☐ OTHER  
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Admission Card No. ....

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

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



## Electrocardiography

Dr. David B. Geselowitz will speak on "Electrocardiography" at the January 13 meeting of the Group on Engineering in Medicine and Biology.

Dr. Geselowitz is presenting a G-EMB Speaker Series Lecture sponsored by the G-EMB Educational Committee. He has received the B.S., M.S. and Ph.D. degrees all in electrical engineering from the University of Pennsylvania. He has been active in biomedical engineering specializing in electrocardiography and cardiac electrophysiology and certain aspects of artificial pacemakers. He is presently Associate Professor of Electrical Engineering at the Moore School and Associate Professor of Electrical Engineering in Medicine at the School of Medicine, University of Pennsylvania. He is Editor of the IEEE Transactions on Biomedical Engineering and a member of the editorial board of the Biophysical Journal.

*Time:* Wednesday, January 13; 8:00 P.M.

*Place:* Rockefeller University, South Lab Building, Room 204, York Avenue and 66th Street, N. Y. C.

*Pre-Meeting Dinner:* Abby Aldrich Hall, Rockefeller University; 6:00 P.M.

## Silicon Diode Array Camera Tubes

Silicon diode array camera tubes will be the subject of the January 14 meeting of the Metropolitan Area Chapter of the Electron Devices Group. The speaker will be R. L. Rodgers of RCA, Lancaster, Pa.

### About the Talk

The rapid development of silicon target technology has led to the development of two new types of camera tube. One is the optically excited Silicon Vidicon and the other is the Silicon Intensifier Target (SIT) Camera Tube, which extends the performance to lower light levels due to its impact ionization mechanism. The operation of these devices and their applications in systems will be discussed.

### About the Speaker

R. L. Rodgers received his degree in Electrical Engineering from the Polytechnic Institute of Brooklyn. He has been engaged in work on electro-optic devices since joining RCA at the RCA Laboratories in Princeton. While at the laboratories he was involved with the research

and development of the Silicon Vidicon and Silicon Intensifier Target camera tubes. In 1969 he transferred to the Lancaster, Pa. Plant to continue work on these devices and their integration into various types of low light level TV cameras and sensors.

*Time:* Thursday, Jan. 14, 1971; 8:00 P.M.

*Place:* General Telephone and Electronics, 208-20 Willets Point Boulevard, Bayside, Long Island, N. Y.

*Pre-Meeting Dinner:* Kam Fong Restaurant, 19-11 Francis Lewis Boulevard, Whitestone, N. Y., 6:00 P.M.

## Display Devices Conference

The 1970 IEEE Conference on Display Devices will be held on December 2-3, 1970, in the United Engineering Center Auditorium, 345 East 47th Street, New York City, sponsored by the Electron Devices Group of the IEEE.

The program will cover all of the disciplines relevant to the research, development, and design of electronic display devices. The following device areas are of preferred interest: Cathode-Ray Tubes; Solid-State Light-Emitters; Plasmas; Liquid Crystals; Lasers; Holographs; Light Valves; Projection Displays.

## International Wire & Cable Symposium

Sponsored by the U.S. Army Electronics Command, the 19th International Wire and Cable Symposium will be held at the Shelburne Hotel in Atlantic City, N. J. on December 2-4, 1970.

Among the topics will be EMC/RFI shield designs and termination techniques for cable, measurements of crosstalk and shielding effectiveness, equipment requirements, and system evaluation.

## Solving T&D Problems With Computers

"Application of Computers to T&D Problems" will be the topic for the December 2 meeting of the T&D Group. Discussion will center on a survey of com-

puter applications for T&D planning, design, estimating, failure analysis and project management. Future graphic applications will also be discussed.

Speakers include: Mr. Richard Briese-meister, Mr. David Hawkins, and Mr. Frank Orawiec, all of Con Edison.

*Time:* Wednesday, Dec. 2; 6:30-8:30 P.M.

*Place:* Union Carbide Corporation, Meeting Room, 270 Park Avenue, N. Y. C.

## Fraternal Helping Hand

Due to changes in governmental priorities and in the industry, (one thinks of aerospace), more than the usual number of IEEE members are at this time seeking work. Spectrum (Sept. '70, pp. 11-12) quotes a judgment that layoffs may increase. The IEEE Board of Directors (BofD) meeting in California in August, was keenly aware that the thrust of economic dislocation does not bear equally on all Sections or on all Groups; further that, in coping with the problems of people, some Sections and Groups have acquired experience they ought to share—how to help members locate re-employment; what outlets are looking for identical, similar, or parallel skills; which ones could be approached with retraining, or with reorientation of viewpoint, or with an acceptance of relocation; how to obtain fraternal help from other IEEE members or from one's college, and so on.

Any sharable ideas along these lines—from Sections, Groups, other organizational units, or individuals—will be welcome to President Granger at IEEE.

Spectrum (Sept. '70, pp. 34-36) ran a timely article on suggested procedures. Review it. Meanwhile, BofD is investigating resources and additional avenues of approach.

### GRAD Offers Help

While on the subject of unemployment, members are advised of the existence of an employment opportunity program called GRAD, conducted under the auspices of the Engineers Joint Council and the College Placement Council.

Interested individuals are referred to Mr. Cary Frey, Executive Director, the Engineers Joint Council, 345 East 47th Street, New York, N. Y. 10017 or Mr. Robert Herrick, Executive Director, the College Placement Council, P. O. Box 2211, Bethlehem, Pa. 18001.



## Instrumentation Panorama 1970

Highlights of the IP-70 held October 14th and 15th at Governor Morris Inn, Morristown, New Jersey, included a comprehensive review of the latest achievements in electronic instrumentation, scientific measurement techniques, and computer-aided technology.

The program offered an exceptional opportunity for engineers in every branch of the electrical/electronic art to update their techniques and application experience.



"Engineer Re-Education—Will Re-Educating Engineers Close the Gap?" was the topic discussed by this panel of Stan Apolant, Mac VanValkenburg, Ted Gams, Dan Cotte, James Earle, Karl Sommer and Hal Perlis at . . . .



. . . the luncheon held on the second day of IP-70 at The Governor Morris Inn.



Karl Sommer presents the Student Paper Award plaque to James Earle of NCE who accepted it for winner Eric W. Mueller, Jr.



## Student Affairs

### Newark College of Engineering

The New York, New Jersey and Long Island Joint Chapter on Instrumentation and Measurement on October 15 awarded a plaque to Eric Mueller of N. C. E. in recognition of his paper on "The Development of an Audio-Prosthesis." This paper took first prize (\$200) last April in M. S. C. paper contest and Region 1 prize (\$25). Mr. Mueller is now serving in the armed forces (Army) out West.

On November 4 a very successful Student Night Meeting was held by the Power Group at Newark College of Engineering. Speakers included *Mr. R. O. Leinback*, Public Service Electric and Gas Company, Newark, N. J.; *Mr. W. R. Knoble*, General Electric Company, New York, N. Y.; and *Mr. K. J. Oexle*, Jersey Central Power and Light Company, Morristown, N. J. The Panel Moderator was *Mr. Howard Barnes*, American Electric Power Company, New York, N. Y. Topics discussed included "The New Engineer in the Power Industry." The speakers also discussed the engineering challenges associated with the power industry, the future of the power engineer, job responsibilities, advanced technology, and new developments.

A free buffet supper was served to all attending.

On Tuesday, December 8, the Annual North Jersey Section Students Night Dinner Meeting will be held at Newark College of Engineering. The theme will be "Opportunities in Electrical Engineering." Admission will be \$.75 to cover dinner cost. Speakers will discuss Environment, Bio-Medical Electronics, Communications, Computer Science and Consumer Products.

### Union County Technical Institute

Union County Technical Institute, which last year placed a member second in the IEEE prize paper contest, once again has an active student chapter. Mr. Al Hartman is the new faculty advisor replacing Mr. Sol Libes who is the new Coordinator of Electronics Technology at UCTI. Thank you, Mr. Libes, for a job well done.

Student membership is 60, comprising Electronics and Computer Electronics Technology. The chapter has formed an amateur radio group. Last year they erected a 6 element, 6 meter antenna on

a tower (with rotor) on the roof. They got on the air at the end of last semester. The group has applied for and received a license. Their call letters are *WB2MLD* and Walter Weiss is acting as faculty advisor for the group. This year the group is constructing a new 6 meter receiver and transmitter, a transceiver for 10, 40 and 80 meters, and spectrum analyzer for amateur radio use. A low frequency long wire antenna will also be erected in the future. The group also conducts code practice sessions for students wishing to become amateurs and for those seeking advanced licenses.

The chapter is planning trips to Fort

Monmouth and the IEEE convention. Other trips are still in the arrangement stage. Guest speakers so far invited to talk are: (1) November, Hewlett Packard, topic "Use of Computing Calculator in Electronics Design" and (2) December, Tektronix, topic "Transistor Curve Tracing and Spectrum Analyzer Techniques."

Also, at least one student is preparing a project (in digital computer design) to be submitted in the paper writing contest in the spring.

The club officers are: President, *Walter Korab*; Vice President, *John Smith*; Secretary, *Wayne Mateyak*; Treasurer, *Paul Costanza*; Faculty Advisor, *Al Hartman*.

## STUDENT AFFAIRS COMMITTEE REPORT

The Student Affairs Committee of the North Jersey Section endeavors to encourage and promote student activities in three major areas with both manpower and financial support.

Working with other engineering groups through the auspices of the "New Jersey Engineers Committee for Student Guidance," the Student Affairs Committee assists high school guidance counselors in explaining the meaning of "Engineering" and the goals of the Engineering field to graduating students. The programs vary from the use of films to panel presentations, in accordance with requests. The theme of the programs is based on the answering of questions posed by the high school students being served. The speakers are equipped with an outline of a suggested talk, complete with charts and publications to supplement the presentation. The number of sessions per year varies from 75 to 100, and the number of student attendees typically varies from 7,500 to 10,000 per year.

Any Engineer in the North Jersey Section willing to spend a day—or even half a day once or twice a year, working in this program should contact Dr. Robert McMillan at the Newark College of Engineering, 323 High Street, Newark, New Jersey 07102.

A second project of the North Jersey Section Student Activities Committee is the Annual North Jersey Students Night, held in consecutive years at Newark College of Engineering, Fairleigh-Dickinson University, and Stevens Institute of Technology. This year's Students Night will be held at the Student Center of Newark College of Engineering. Jim Earle, the faculty IEEE advisor heads the Students Night Committee. The program is conceived by the host group, and all contacts for speakers, equipment, and refreshments are initiated by them.

For the third project the North Jersey Section joins with the New York Metropolitan Section and the Long Island Section in order to encourage joint IEEE student activity on the part of the fifteen 4-year colleges and the five 2-year community colleges and technical schools located in this area. These IEEE student groups coordinate their joint ventures through the Metropolitan Student Council. The Senior Advisor of the "Council" is Dr. Peter Mauzey of the Bell Telephone Laboratories. The major event of the Metropolitan Student Council is the Annual Student Paper Contest.

Papers for this annual contest are composed and rated in accordance with a fairly detailed set of rules drawn up and adopted by the Metropolitan Student Council. Four outside judges read and rate the written papers. The top five or six authors are asked to make an oral presentation, for which two additional judges are added to the panel.

Competition for the top prizes is often quite keen, understandably so considering the top four prizes typically are \$200.00, \$100.00, \$75.00, and \$50.00. The winner of the first prize normally enters the National IEEE Student Paper Contest, and competes for the top prize of \$500.00. Many worthwhile papers have been presented in the Metropolitan area to date, and the experience gained in demonstrating not only writing ability but oral skill has put many of the contestants far ahead of the field when it became time to look for an engineering job after graduation.

Truly, the North Jersey Section of the IEEE presents a student program which is quite extensive.

*James Earle, Chairman, Student Affairs Committee*





The IEEE

# Newsletter

The Magazine of the North Jersey Section

**JOINT MEETING: NJ SECTION & AUTOMATIC CONTROL GROUP**

**ENGINEERING, SOCIETY AND THE IEEE**

**Dr. J. H. Mulligan, Jr., Speaker**

**ROOM 1H-009, BELL TELEPHONE LABORATORIES (Above)**

**WHIPPANY, NEW JERSEY**

**Monday, December 21, 1970 8:00 P.M.**