



The IEEE

Newsletter

The Magazine of the North Jersey Section

Stevens Center, December 11

Annual Students' Night

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Volume 15, Number 4

December, 1968

Dr. R. P. Misra Named Member-at-Large by Section

At its September executive meeting the North Jersey Section named Dr. Raj P. Misra, Professor of Electrical Engineering at Newark College of Engineering, Newark, New Jersey, as a Member-at-Large of the section's executive committee. Dr. Misra replaces Harry Clark who resigned because he was moving away from this area.



Dr. Misra was born in Chhatarpur, India, on December 23, 1919. He holds a B.S. degree from M.I.T. and M.S. and Ph.D. degrees in Electrical Engineering from Cornell University.

In addition to his position at N.C.E., Dr. Misra is a consultant to a number of companies, including Texas Instruments, Inc. He is also on the Board of Directors of Solitron Devices, Inc. His past experience includes research and development work for the Philco Corporation. He has also taught at Cornell University, the University of Pennsylvania, and Lehigh University.

Dr. Misra is a senior member of both the I.E.E.E. and the American Society for Quality Control and a member of the Societe Francaise des Ingenieurs et Techniciens Du Vide. He is also a member of the Phi Kappa Phi and Sigma Xi. Dr. Misra was the founding chairman of the North Jersey Chapter on Reliability and Chairman of the 1964 Basic Failure Mechanisms and Reliability in Electronics Conference. He is the author of over eighteen technical papers and articles.

Dr. Misra presently resides at 1 De Camp Court, West Caldwell, New Jersey, with his wife and four children.

Report From The Student Affairs Committee

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. Pemberton Johnson 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 impressive Stevens Center at the Stevens Institute of Technology, Castle Point, Hoboken, New Jersey. Paul Greenfield, the Chairman of the Stevens IEEE Student Chapter heads the Students Night committee, being assisted by Dr. Stanley H. Smith, the Stevens Tech IEEE Faculty Advisor. 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 that 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

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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
 1968-1969**



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 Jr. Past Chairman Bernard Meyer

Executive Committee Meeting

Verona Public Library,

DECEMBER 4, 7:30 P.M.

North Jersey Students' Night

Once again, the North Jersey Section of the IEEE is holding its annual Students' Night with Stevens as the host school.

Unlike the previous few years, the 1968 Students' Night will be held mid-week, on Wednesday night, December 11th, with hopes of increasing student participation by not interfering with weekend plans. The program will be held in the Stevens Center, the tall building on the cover, overlooking the New York City skyline, from 7:00 to 10:00 P.M. There will be a pre-meeting dinner

for all chapter officers, faculty advisors, and North Jersey Section and Group officers attending the program, starting at 5:30 P.M.

The attendees of the Students' Night will hear speakers discuss the expectations of Industry towards the newly graduated engineer, and will, as in previous years, be the recipients of the many door prizes donated by the members of New Jersey's electrical and electronic industries.

As a final note, students at Stevens Tech are making arrangements to insure a large turnout of students and hope that you all leave Wednesday night, December 11th free for attending the North Jersey Students Night of 1968, and making it a big success.

RELIABILITY GROUP MEETING NOTICE

The North Jersey Reliability Group of the North Jersey Section will hold a meeting on December 11, at 8:00 P.M., at Kearfott Systems Division, Plant 10, 150 Totawa Rd., Wayne, N. J.

Speaker will be Mr. David Troxel, Leader of Systems Effectiveness, RCA, Camden, N. J. The topic of his talk will be "Reliability Prediction—MIL Hdbk. 217—It's Use and Misuse."

For further information, call G. Ebel at 226-7777, or J. Gerth at 386-4191.

**STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION**

(Act of October 23, 1962; Section 4369, Title 39, United States Code)

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TOTAL	5638	5600

I certify that the statements made by me are correct and complete.

M. M. Perugini

Time-Sharing and Virtual Systems


Time and space sharing on a computer is not simply a matter of accommodating several users. To keep the users happy the system must be able to respond rapidly to requests, to provide sufficient storage and other facilities, and to have a variety of functional properties. A discussion of these problems with emphasis on virtual systems as a partial solution is the subject for an evening meeting of the N. Y. Chapter of the Computer Group, at 7:45 P.M., Tuesday, December 17. Dr. Herbert Hellerman, of IBM's Systems Development Division, will be the speaker.

About the Speaker

Dr. Hellerman will be looking at the major unique properties of time-sharing systems with emphasis on resource scheduling and its relationship to the generality of functions provided. Virtual storage presently represents one frontier of function generality and has been included in some time-sharing systems. Why have there been problems in implementing virtual systems? Dr. Hellerman will be giving some of the answers. *Time:* Tuesday, December 17, 1968; 7:45 P.M.

Place: Auditorium, Burroughs Corp., 3rd Ave. at 40th Street, N. Y. C.

Pre-Meeting Dinner: 6:00 P.M.; Longley's Restaurant, 39th Street, N. Y. C.

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Report From The Education Committee:

That Learning Attitude

One of the most important obligations of the IEEE to its members is to present educational information. As we all know, this information is obtained by attending courses presented by the educational committee, participating in group meetings and reading the latest papers and periodicals that are offered by the various groups of the IEEE. This educational material is obviously presented to assist a member with his job, obtain background knowledge, act as a refresher and so on, to mention a few of the numerous reasons.

One of the not so obvious reasons for subjecting one's self to this material is it continues our learning process. Let's think of this a second! Webster's dictionary defines Learning as, "The acquisition of knowledge or skill" and Process as, "A phenomenon which shows a continuous change in time." By definition, it references you to industry. A knowledge or skill as acquired to put a product on the market and as time continues the product must change to meet competition or demand.

Along this same line of reasoning, man's learning ability should be considered. He begins his learning from birth and it starts to culminate when he finds his profession. How soon he climbs to his pinnacle of success depends on how well he learned, but how long he continues on the ladder of success is another story. As in industry, if the product doesn't continue to advance with time it becomes obsolete or incompetent. The same holds true with man, if he doesn't continue his learning process, he too becomes obsolete or incompetent.

Learning is a skill and like any skill it must be worked at. It is not something you can master or feel you have, and then set aside.

Psychologists have studied the learning process for years and like everything in nature it has laws of its own. Two of these laws can be broken down to; "The more there are of common or similar elements the easier it is to learn something new in a subject" and the other law tells us, "The more experience one has had in learning the easier it is to acquire additional knowledge."

If you look at the successful men of your Company or any company, you will find they know not only their field from "A" to "Z" but are well acclimated to other fields and subjects as well. As you can guess, this is not just by chance. They have trained themselves.

One common piece of incorrect knowledge that has been about for a long time is advancing age brings about a mental decline, that eventually an aged person can no longer mentally compete with young upcoming men. I believe the only truth in this is an older person tends to procrastinate with his learning attitude.

There is little doubt refresher courses offer important knowledge to the individual, but the most important contribution is continuation of the learning skill. A last thought for me to add, "Courses taken too far apart are no better than not attending any course as far as the learning attitude goes."

B. G. Geertsma, Chairman, Education Committee

LECTURE SERIES — SPRING, 1969

PROTECTIVE RELAYS AND THEIR APPLICATION

A twelve-session study course to assist electrical, consulting, and project engineers, contractors, maintenance, technicians, architects and others who are interested in protective relays and systems. The course will cover the basic principles of protective relays, their application, their selection and basic concepts for setting relays for system conditions. The sessions will be presented by recognized professional relay engineers associated with Westinghouse Electric Corporation. The text will be *Applied Protective Relaying* supplemented with notes and papers. Homework problems will be assigned to amplify the lectures.

January 21 — Introduction and General Philosophies.

Discussion of the general philosophy of protective relaying, application principles, review of basic units.

J. L. Blackburn

January 28 — Technical Tools of the Relay Engineer.

Brief review of phasors, symmetrical components, instrument transformers as related to relay applications.

J. L. Blackburn

**February 4 — Rotating Machine Protection —
Generators.**

Differential, ground, loss-of-field, negative sequence, field ground, anti-motoring overcurrent.

W. L. Hinman

February 11 — Rotating Machine Protection — Motors.

Differential, ground, overload, phase rotation, single phasing - unbalanced current.

W. L. Hinman

February 18 — Transformer Protection.

Differential, sudden pressure, overcurrent, Magnetizing inrush problems. Regulating transformer protection.

J. L. Blackburn

**February 25 — Bus Protection and Breaker Failure
Detection.**

Differential - multi-restraint current, overcurrent, linear coupler, voltage differential and partial differential. Faulty breaker detection will be discussed.

W. L. Hinman

March 4 — System Grounding and Ground Relaying.

Discussion of various system grounding schemes, the reasons for their choice, and their effect on the selection and polarizing of ground relays.

W. A. Elmore

March 11 — Transmission Line & Feeder Protection.

Zone distance, directional overcurrent, overcurrent. Application and setting of feeder relays. Coordination with fuses, reclosers, series trip devices.

W. A. Elmore

March 18 — Transmission Line & Feeder Protection

Pilot wire systems. Protection and monitoring of pilot wire circuits.

W. A. Elmore

March 25 — Transmission Line & Feeder Protection

The Utility tie. Multi-terminal and tapped transmission lines.

W. A. Elmore

April 1 — System Stability, Reclosing, Load Shedding.

Discussion of fundamentals of system stability and out-of-step relaying. Coverage of reclosing. Discussion of reasons for and sensing devices to initiate load shedding.

W. A. Elmore

April 8 — Application and Setting by Computer

Methods and Testing Philosophies.

Computer program for applying and setting protective relays on an electric power system with an example of a previously assigned problem.

Fundamentals of maintenance and testing.

J. L. Blackburn

TIME 6:30-9:00 P.M. Tuesday nights — Starting January 21, 1969.

PLACE Punch Bowl Room, Jersey Central — New Jersey Power & Light Co. Bldg., Madison Ave. at Punch Bowl Road, Morristown, N. J.

FEE \$35.00 to members (IEEE, ASME, NJSSPE, etc.); \$40.00 to non-members. A \$5.00 discount for early registration applied to both applications. Fees include text, *Applied Protective Relaying*, by Westinghouse Electric Corporation, Relay Instrument Division, Newark, N. J., and other printed materials.

REGISTRATION FORM — PROTECTIVE RELAY COURSE

Send to: A. J. Dolan
c/o Westinghouse Electric Corporation
67 Evergreen Pl.
East Orange, New Jersey

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Please make checks payable to: North Jersey Section IEEE.

Mathematics Review for Engineers

New York Section, Com Tech Group Chapter, will present the second section of an engineering education series re-

MATHEMATICS FOR ENGINEERS (PART II)

Mr. H. J. Haarman

New York Telephone Company
Room 1369
140 West Street
New York, New York 10007

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____ Non-Member (Fee \$20)

____ Student (Fee \$7)

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Membership No. _____

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Data Systems Lectures

The New York Section, Communications Technology Group Chapter, will present the second section of an engineering education course on Data Systems. The speaker will be Dr. Burton R. Saltzberg who will lecture on the following evenings from 6:30 to 8:30 p.m. at the American Telephone and Telegraph Company Auditorium, 195 Broadway, New York, New York:

DATE	TITLE
January 8, 1969 (Wednesday)	Amplitude Modulation
January 13, 1969 (Monday)	Frequency Modulation
January 21, 1969 (Tuesday)	Pulse Code Modulation
January 29, 1969 (Wednesday)	Phase Modulation
February 5, 1969 (Wednesday)	Channel Size and Effects of Impairments
February 19, 1969	Summary

Dr. B. R. Saltzberger, a native New Yorker, received a B.E.E. from New

York University in 1954 and an M.S. from the University of Wisconsin in 1955. From 1955 to 1957 he served in the Army Signal Corps. He joined the Bell Telephone Labs in 1957 and worked on the development and analysis of Data Transmission Systems. In 1964 he received his Engineering Science Doctorate from N.Y.U. At present he is supervisor of group design of data systems. He is a member of Tau Beta Pi, Delta Kappa Nu, Sigma Chi, and I.E.E.E.

The speaker for this series will be Prof. Michael Lione, Associate Professor of Mathematics at Newark College of Engineering, and the lecture dates are listed below.

DATE	TITLE
January 9, 1969	Laplace Transforms & Fourier Analysis
January 16, 1969	Laplace Transforms & Fourier Analysis
January 23, 1969	Vector Analysis
January 30, 1969	Vector Analysis
February 6, 1969	Matrix Algebra
February 13, 1969	Matrix Algebra

Lectures will be held 6:30 to 8:30 p.m. at the New York Telephone Company Auditorium, 140 West Street, New York City. For further information contact H. J. Haarman, New York Telephone Company, Room 1369, 140 West Street, New York, New York; Phone (212) 394-1399. Make checks payable to Communications Technology Group Chapter, New York Section, I.E.E.E.

York University in 1954 and an M.S. from the University of Wisconsin in 1955. From 1955 to 1957 he served in the Army Signal Corps. He joined the Bell Telephone Labs in 1957 and worked on the development and analysis of Data Transmission Systems. In 1964 he received his Engineering Science Doctorate from N.Y.U. At present he is supervisor of group design of data systems. He is a member of Tau Beta Pi, Delta Kappa Nu, Sigma Chi, and I.E.E.E.

Further information about this course may be obtained from Mr. N. Syvertsen of N. Y. Telephone Company, (212)-394-8693. Checks should be made payable to Communications Technology Group Chapter, N. Y. Section, I.E.E.E.

DATA SYSTEMS (PART II)

Mr. N. Syvertsen

New York Telephone Co. Rm. 2611
140 West Street
New York, New York 10007

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Student Affairs

Stevens Group Officers Active

The Executive Committee of the Stevens Institute of Technology consists of three student officers and a faculty advisor. The officers are: Michael Bess, Vice Chairman; Paul G. Greenfield, Chairman; and Wayne Monsees, Secretary-Treasurer. Faculty Advisor is Dr. Stanley H. Smith.

Chairman Greenfield, a Senior majoring in Electrical Engineering, has a quite active campus life. In addition to his IEEE Chairmanship, Paul presently serves as Treasurer of the Stevens Chapter of Theta Xi, National Fraternity, works as a computer programmer at the Davidson Laboratory of Stevens Tech, and plays on his fraternity's squash and football teams. In his "spare time," Paul pursues his interests in "hi-fi" and solid state electronics. Upon graduation, Paul plans on continuing his education in graduate school.

Vice Chairman Bess, unlike most IEEE Student Members, is not majoring in Electrical Engineering. A Senior, his academic major is in the field of Physical Metallurgy. Besides his IEEE Chapter duties, Mike is President of the Stevens Chapter of Theta Xi, and spends time on his hobbies of amateur radio and motorcycling. Although he had a very gainful industrial experience last summer, working for Amax Research, Mike plans on starting graduate school next September on a full time basis.

Wayne Monsees, a Sophomore Electrical Engineering major, wears the most hats on the IEEE Chapter Executive Committee. Besides being Chapter Secretary and Treasurer, Wayne is the Chairman of the IEEE Student Workshop (Laboratory). This last function complements his chief interests of amateur radio and test equipment development.

Previous issues of the Newsletter have followed the growth of Stevens' IEEE Student Laboratory, a first in the North Jersey area, from its inception last year through the many gifts of components and equipment from industry. The Chapter gratefully thanks the electronics industry for their assistance which has greatly aided the Stevens Chapter members in gaining familiarity with state-of-the-art discrete and integrated circuit devices.

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Report From The: Computer Group

Of course the Computer Group is one of the 31 Groups making up IEEE. Of course? Well, not if the Computer Group has its way. The Executive Committee of the Group has approved a long range planning document written by Past Chairman Sam Levine which, among other things, recommends that the Group obtain status as a semi-independent society within IEEE. Work on this plan is under way and may succeed within the next year. Following this the Group desires to merge with other organizations having allied interests both in and out of IEEE. Considering the success the Group has had with their new periodical, "Computer Group News," who can say these plans will not succeed.

The Group also publishes the IEEE Transactions on Computers, a monthly journal, runs the yearly Computer Group Conference, cooperates with AFIPS to run the annual Spring and Fall Joint Computer Conferences, and prints transcripts of these conferences.

The local Chapter cannot compete with the quantity and quality of information disseminated by the Computer Group and it doesn't try to. Instead it provides the flavor of the job through personal contact meetings with interesting speakers, the kind which few of us can attend on a national scale. These meetings allow you to hear opinions instead of just facts, to get ideas from the give-and-take, to be challenged by someone else's enthusiasm and to meet others in your field or other fields. You are encouraged to attend the local Chapter meetings of the Computer Group which will be described in subsequent issues of this Newsletter. Moreover you might like to know more about the local Chapter.

In the Northern New Jersey Section the Computer Group Chapter has about 550 members, about 10% of all IEEE members in this area. This percentage is somewhat above the overall IEEE average. You may wonder why there are so many members when there is just one manufacturer of computers here. The answer seems to be that there are a large number of people "also interested in computers." They have other, probably primary, interests. What are these? For instance, 60% of Computer Group members also belong to at least one other Group. The more common combinations are: Communication Technology 15%, Aerospace and Electronic Systems 14%, Circuit Theory 12%, Systems Science and Cybernetics 11%, Information Theory 10% and Automatic Control 10%.

These "alsos" are the backbone of the Computer Group Chapter in Northern New Jersey. Note the following points: 1. Since the Chapter was formed six years ago no officer has worked for a company that was primarily a computer manufacturer. 2, The record of every meeting shows that almost all attendees are from non-computer companies, often non-members of the Computer Group, sometimes non-members of IEEE. 3, Virtually all of the meetings are on subjects of interest to people who use computers, or who interface with computers or in the area between computers and something else.

The second point to be made about the people who attend local Computer Group meetings is that they come primarily from the smaller companies. In contrast, the percentage from Bell Labs is considerably lower than their proportion of all local Group members which is about 16%.

The moral to be drawn from all of this is that the Northern New Jersey Chapter of the Computer Group is supporting you engineers who work for smaller companies and who are professionally interested in some field and "also interested in Computers." Likewise the Chapter needs your support. There is no group of computer professionals who will run the Chapter. We need you people to give us new ideas, to propose meeting topics, to help arrange meetings, to be on our advisory council and eventually to become future officers.

If you have read this far, you are probably both interested and qualified. Please contact me for more details.

Ted Byrne, Chairman, Computer Group, North Jersey Chapter

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