

Software Quality Through Robust Testing

(1 Day Seminar)

March 1, 1994

April 19, 1994

Software testing consumes 30-70% of the development resources; however, the shipped products have many faults. The **Robust Testing** method can reduce the testing cost, reduce product introduction delays, and send fewer faults to the field by **generating test cases that are more efficient and thorough in finding faults**. A Robust Testing case study published by AT&T about testing its electronic mail software showed that testing was done in half the time and detected 30% more faults when compared to the conventional testing method. This accounted for a productivity improvement by a factor of 2.6.

The **Software Quality** seminar is based on Dr. Phadke's pioneering research and practical applications over the last six years in Robust Testing and Robust Design (Taguchi Approach).

Who should attend:

Software engineers, developers, and testers

You will learn to:

- ◆ use *orthogonal arrays* for generating test cases
- ◆ construct suitable orthogonal arrays for specific situations
- ◆ find faults early in product development
- ◆ optimize hardware/software system performance

Application Areas

- ◆ Unit testing
- ◆ Regression testing
- ◆ Integration testing
- ◆ System testing
- ◆ Design Validation
- ◆ Protocol testing
- ◆ Performance tuning

Taguchi Approach - Robust Design Method

(1 Day Executive Seminar)

February 28, 1994

April 18, 1994

Global competitiveness requires rapid delivery of high quality products at low cost. The **Robust Design** method achieves these goals by **improving R&D speed and efficiency**. It helps develop a flexible technology that can be effectively applied to many products. While developing products and processes, the Robust Design method eliminates the traditional build-test-fix cycles. World class Japanese, American, and European industries have used this method during the last decade to save hundreds of millions of dollars.

The **Executive Seminar** is based on Dr. Phadke's experience in guiding many companies in deploying the Robust Design method and his thirteen years of close working relationship with Dr. Taguchi. The seminar introduces the Robust Design method and prepares managers to guide its deployment.

Who should attend:

R&D managers and manufacturing managers

You will learn to:

- ◆ measure quality from the customer's view point
- ◆ use signal-to-noise (S/N) ratios to predict field quality and reliability
- ◆ manage Robust Design case studies
- ◆ reduce time-to-market
- ◆ manage economics of quality improvement

Application Areas

- ◆ Plastic molding
- ◆ A/C system design
- ◆ Engine design
- ◆ Electronic design
- ◆ NC machining
- ◆ Business process application
- ◆ Performance tuning
- ◆ Reliability improvement

Registration Information

Seminar Fee: The fee is \$350 and it includes seminar notes, refreshments, and lunch. A reference text book may be purchased at the discount price of \$ 40. Advance registration is required.

Seminar Schedule: Registration and refreshments at 8:30 am. Seminar hours are 9:00 to 5:00 pm.

Free Preview: You may send someone to review a public offering of this seminar and receive full credit for the paid registration fee towards a subsequent on-site seminar.

Eatontown Sheraton, Rt 35 & Industrial Ave.
Eatontown, NJ 07724. (908) 542-6500

Call for details:

Phadke Associates, Inc.

Tel: (908) 389 - 8533

Fax: (908) 389 - 0489

Instructor: Dr. Madhav S. Phadke

- International leader and pioneer
- Winner of Taguchi Award
- 14 years experience with AT&T Bell Labs
- Author of *Quality Engineering Using Robust Design*
- Consultant to major companies: AT&T, Kodak, Ford, Allied Signal, ITT ...



The IEEE

Newsletter

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

NPSS Chapter Chairman Needed

The North Jersey Section of the IEEE is in need of a volunteer for the position of chairman of the Nuclear and Plasma Sciences Society chapter.

Any member of that Society living in the area, interested in coordinating meetings with speakers should contact either Vittal Rebbapragada at (201) 804-2011 or Mel Lewis at (201) 337-4767.

North Jersey Section PACE: Continuing Education And The Working Engineer

At the February 10, 1994 meeting of the North Jersey Section's Professional Activities Committee for Engineers, the topic will be "Continuing Education And The Working Engineer." The speaker will be Dr. Robert G. Kahrmann, Manager, IEEE Education Dept., Piscataway, N.J.

About The Talk

Dr. Kahrmann previously spoke at a meeting last June regarding CEU's (Continuing Education Units). At this meeting, Dr. Kahrmann will cover the topic of continuing education and the engineer.

The presentation will include the latest developments in the field. Current trends in continuing education will be examined and some of the products now available from the IEEE show how engineers are helped to keep up with the latest technological developments.

Covering the 1994 IEEE Video-conferences, Dr. Kahrmann will explain the newest video tutorials, video proceedings, and self-study programs available and in addition, will cover some of the newer projects under consideration and what's available to engineers from other sources.

Finally, you will be updated on where the whole movement of CEU's and PDH's is heading. If you don't know what those initials stand for, you might want to come and learn about their impact to you.

Time: 7:30 PM, Thursday, February 10, 1994.

Place: JCP&L Co., 300 Madison Avenue and Punch Bowl Road, Morristown, N.J.

Further Information: Robert Sinusas (201) 228-3941.

North Jersey Reliability Soc.: Success Factors In Asian Electronics Industry

The North Jersey Chapter of the Reliability Society will meet on February 10, 1994. The talk will be "Success Factors In The Malaysian, Taiwanese And Japanese Electronics Industry." The speaker will be Dr. Michael Pecht of the University of Maryland, CALCE Electronics Packaging Research Center.

About The Talk

This unique presentation addresses: the key technology trends for printed circuit board assembly, including super-fine pitch packaging, chip on glass and novel solders; the approach and techniques to automation; the philosophy of "no-test" and "no-screening" as part of an effective and cost-effective transition to high reliability and high quality electronics products; the role of ISO 9000 and U.S. standards in obtaining quality.

About The Speaker

Dr. Michael Pecht is a tenured faculty member with a joint appointment in Systems Research and Mechanical Engineering. He is also the Director of the

National Science Foundation supported CALCE Electronic Packaging Research Center at the University of Maryland, which is funded by twenty-eight of the leading U.S. electronics manufacturing and government agencies. Dr. Pecht has a BS in Acoustics, a MS in Electrical Engineering and a MS and PhD in Engineering Mechanics from the University of Wisconsin. He is a Professional Engineer and an IEEE Fellow. He serves on the board of advisors for various companies and was a Westinghouse Professor. He is the chief editor of the *IEEE Transactions on Reliability*, a section editor for the Society of Automotive Engineering, and on the advisory board of *IEEE Spectrum*. He has edited five books on electronics design, reliability assessment and qualification.

Free Buffet

A free buffet will be provided starting at 6:00 PM, on a first-come-first-served basis.

Time: 7:00 PM, Thursday, February 10, 1994. (Buffet starting at 6:00 PM.)

Place: ITT Avionics Auditorium, 100 Kingsland Rd., Clifton, N.J.

Further Information: Henry Moss (212) 674-5048.

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FEBRUARY, 1994

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NEWSLETTER STAFF

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Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be addressed to: The IEEE Newsletter, c/o Girard Associates, Inc., 6 Robert Terrace, P.O. Box 455, Mt. Arlington, N.J. 07856 (201) 398-5524.

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(908) 981-0060

It is not necessary to inform the North Jersey Section when you change your mailing address. "The IEEE 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

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The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7 PM. These meetings are open to all members. Information on meeting agenda is available from Mel Lewis, Section Secretary at (914) 968-2500, ext. 2304.

Elected Section Officers are listed above.

CHAIRMAN'S CORNER

Thanks (I think) for allowing me to serve as Chairman of the North Jersey Section for 1994. I'll try to live up to the accomplishments of my predecessors.

Our attendance at Section meetings consists of primarily our Executive Committee members. I would like encourage the attendance of student members and regular members who are interested in the workings of the IEEE. I have requested all of our Chapter Chairmen to be far more active in organizing meetings with exhibits, mini-Symposia, conferences, etc. I implore everyone to attend the meetings and bring us new ideas. In particular, we are interested in ideas for speakers, meeting locations, and as stated above, the increased participation of our general membership. Please feel free to fax me any ideas which you might have to improve the operation of the North Jersey Section.

Everyone seems to think that this will be an austere year. However, if we all participate in Section activities, in particular those which tend to generate income (such as shows, classes, job fairs, etc.), we may be able to reduce the budget gap. In any event, our technical activities will be going "full bore." If you have comments or suggestions, I may be reached at phone number (201) 804-2011 or FAX number (201) 804-2018. I look forward to serving you this year.

If you want to have material considered at the EXCOM meeting, and you plan to either spend or generate money, it will be necessary to submit the agenda items directly to me, or the Section Secretary, at least one week prior to the meeting. This is so the other Executive Committee members can have an opportunity to familiarize themselves with EXCOM business prior to having to deal with it at the meeting. This requirement for early submission will not apply, of course, to emergency items. If you find money on the street and want to donate it to the Section, we will accept it, without notice at the meeting.

R.V. Rebbapragada

North Jersey MTT-S:
Solving
Electromagnetic
Scattering
Problems

The topic at the IEEE North Jersey Section Microwave Theory and Techniques Society chapter meeting on February 23, 1994, will be "Recursive T-Matrix Algorithms For Electromagnetic Scattering Problems." The speaker will be Dr. Levent Gurel, IBM Research Div., Yorktown Heights, N.Y..

About The Talk

Recursive T-Matrix algorithms have been applied to the electromagnetic scattering problems involving both conducting and dielectric geometries. In this talk for a systematic development, canonical geometries of conducting strips and patches will be presented. These geometries are reminiscent of finite-sized frequency selective surfaces. The formulation uses only two components of the electric field. Therefore, the vector electromagnetic problem of scattering from three-dimensional patch geometries can be solved using scalar—rather than vector—addition theorems for spherical harmonic wave functions. For a two-dimensional strip problem, both TM and TE polarizations can be solved simultaneously using this formulation. Numerical scattering results are presented in the form of radar cross sections (RC) and validated by comparison with the Method of Moments (MOM). Two recursive T-Matrix algorithms (RTMAs) are presented and their reduced computational com-

plexities memory requirements are demonstrated The single-scatterer T-Matrix concept of Waterman is extended to obtain recursive relations among many-scatter T Matrices. Once the isolated single-scatterer T-Matrices are known for all the scatterers in the problem, the recursive relations can be used to compute the many scatterer T Matrices. Computational complexities of $O(N^2)$ and $O(N^{7/3})$ and memory requirements of $O(N)$ and $O(N^{4/3})$ are shown to be feasible for two-dimensional and three-dimensional geometries, respectively.

About The Speaker

Levent Gurel joined the Thomas J. Watson Research Center of IBM in 1991, where he has been working on the electromagnetic problems related to electronic packaging using numerical and analytical techniques. Dr. Gurel is also interested in the theoretical and computational aspects of microwave cavity applications, electromagnetic compatibility and interference analyses, millimeter wave and microwave integrated circuits and fast algorithms designed to solve the electromagnetic (scattering, radiation, resonance, guidance, etc.) problems of inhomogeneous and layered media, high-speed electronic circuits, and frequency-selective surfaces.

All Welcome

Members and guests interested in the subject are invited.

Time: 7:00 PM, Wednesday, February 23, 1994.
Place: NJIT, 202 ECEC, Newark, N.J.
Information/Reservations: Dick Snyder (201) 492-1207; Willy Schmidt (201) 492-0371; Edip Niver (201) 596-3542.

CIMPRO '94

The National Science Foundation and the Defense Logistics Agency is sponsoring a conference "Computer Integrated Manufacturing in the Process Industries (CIMPRO '94)." The conference, endorsed by the IEEE Systems, Man, & Cybernetics Society, and IEEE's Robotics & Automation Society, will take place April 25 & 26, 1994 at the Brunswick Hilton Hotel, East Brunswick, N.J.

The conference includes more than 85 presentations covering all major topics of interest, including: Statistical Process Monitoring and Control; CIM Information Systems; Fault Detection; Monitoring and Diagnosis of Industrial Processes; Sensors and Process Automation; Artificial Intelligence; Neural Nets and Fuzzy Logic Control; Robust Design of Processes; Scheduling and Production Control. Also, applications in continuous and batch process industries, including chemical and petrochemical, pharmaceutical, food and beverage, pulp and paper, among others.

To make reservations or to obtain conference program contact: Ms. Cindy Ielmini, CIMPRO '94 Conference Secretary, Dept. of Industrial Engineering, Rutgers University, P.O. Box 909, Piscataway, NJ 08855-0909, Tel. (908) 932-3654, Fax (908) 932-5467, email cimpro@princess.rutgers.edu.

Call For Papers

The IEEE International Engineering Management Conference 1994, will be held on October 17-19, 1994 in Dayton, Ohio. The theme of this conference is "Management In Transition: Engineering A Changing World."

Five technical tracks are planned, covering major topics of interest to the Engineering Manager:

Track 1: Quality Management
Case Studies; Communicating & Educating; Teamwork & Leadership; Total Quality Techniques.

Track 2: Technology Management
R&D Management; Technology Transfer; Risk Analysis; Information Management.

Track 3: Management Tools
Electronic Work Place; Artificial Intelligence; Models & Simulations; Time Management; Project Planning & Tracking.

Track 4: Industrial Base Management
Manufacturing; Defense Conversion; Logistic Management; Acquisition Management; Productivity.

Track 5: Managing People
Career Planning; Motivation Methods; Managing Technical People; Mentoring Process.

Engineers and managers are urged to submit abstracts for papers, tutorials, and panel discussions to be presented at this conference. Of special interest are papers describing successes and failures as well as plans for implementation of new concepts.

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Please send an abstract of approximately 200 words, along with a brief biography, as well as your address, affiliation, telephone and FAX number no later than 1 February 1994 to:

Barbara McQuiston
Paper Chairperson
Syntronics
1656 Mardon Dr., Dayton, OH 45432
Phone: (513) 429-1466
FAX: (513) 429-3390, or
Ray Gregg
General Chairperson
SAIC
101 Woodman Dr., Suite 103
Dayton, OH 45431
Phone: (513) 258-1170
FAX: (513) 253-9765
Persons interested in additional information or future mailings, contact the General Chairperson.

No. Jersey Chapters
PES/IAS Technical
Sessions For 1994

Mar. 17 - "Automatic Bus Transfer—Design Features That Need to be Addressed" - I. Hassan (Ebasco)

Apr. 21 - "Design Issues Related to Powering and Grounding Sensitive Electronic Equipment - IEEE Std. 1100 Perspective" - R.V. Rebbapragada (Ebasco)

Apr. - "Selection and Application of Metal Enclosed/Metal Clad Switchgear" - Ward Laubach

May 19 - "Recommended Practice for Energy Conservation and Cost-Effective Planning for Industrial Facilities" - B. Mukherjee (American Cyanamid)

May - "Fault Calculations for Industrial/Commercial Power Systems (One-Day Seminar)" - Panel of Experts.

June 16 - "Equipment Grounding Practices—in Electric Utility Installations (IEEE Std. 665) and in Industrial Installations (NEC)" - R.V. Rebbapragada (Ebasco) and Won Kim (Scherring and Plough)

July 21 - "Robotics in Utility and Industrial Applications" - Harry Roman (PSE&G)

Aug. 18 - "Reliability Centered Maintenance" - Dick McFadden (SAIC)

Sept. - "Fiber Optic and Robotic Sensors for Industrial Applications" - R.V. Rebbapragada

Sept. - "Variable Speed Drives (One-Day Seminar)" - Panel of Experts

Oct. - "Harmonics and Power Quality (One-Day Seminar)" - Panel of Experts

Oct. - "Design Features of Photo Voltaic-Based Power Systems" - Ed Sabisky

Nov. 17 - "Effect of Magnetic Fields on Humans from Power Lines and VDTs" - George Fantozzi (Ebasco)

Dec. - "Installation and Operation of Underground Power Cables" - Ted Balaska

North Jersey PES/IAS:
Application Of
Adjustable Speed
Drives

On March 17, 1994, the North Jersey Power Engineering/Industry Application Society Chapters will present a talk on "Application Of Adjustable Speed Drives—Technical Issues." The speaker will be Ibrahim Hassan of Raytheon Engineers and Constructors Inc., Ebasco Division, in New York City.

About The Talk

The presentation will discuss the energy saving advantages and potential applications of ASD systems. The principles of AC motor speed/torque control and the power electronic devices used in large ASD systems will be presented. This will be followed by an overview of large synchronous and induction motor ASD systems configurations and principles of operation. The presentation will also discuss converter generated harmonics and the interactions between the converter, motor, and driven load, as well as the interactions between the converter and the power source. The presentation will be concluded by discussing ASD application considerations and analysis required at the planning stage.

About The Speaker

Ibrahim Hassan has 28 years of experience in the engineering and analysis of electrical systems and equipment. Currently, he serves as a Senior Consulting Electrical Engineer for the Nuclear and Advanced Technology Division of Raytheon Engineers and Constructors Inc., Ebasco Division. He has extensive experience in the development, analysis, and application of large power converters and rotating machinery. He has taught college courses and served as an instructor in seminars on the theory of electrical machinery and adjustable speed drives. He also participated in the development of industry standards related to adjustable speed drives as a member of several IEEE working groups.

All Welcome

Free Pre-Meeting Buffet

Members and guests interested in the meeting topic are invited. Reservations are required for the complimentary pre-meeting buffet which starts at 6:00 PM followed by the meeting at 7:00 PM.

Time: 7:00 PM, Thursday, March 17, 1994.

Place: JCP&L Co., Punch Bowl Room, 300 Madison Avenue, Morristown, N.J.

Reservations/Information:

Ken Oexle (JCP&L) (201) 455-8481; R.V. Rebbapragada (Ebasco) (201) 804-2011 or (212) 839-1473 .

///////////////////////////////// Invited Speakers ///////////////////////////////////

Bob Lucky (V. P. - Bellcore)..... Keynote Address
Don Cox (Professor - Stanford University) "Wireless Access to Networks"
Mark Emery (V. P. - American Personal Communications). "APC's View of PCS Architectures and Services"
George Brody (V. P. - Bell Northern Research)."PCS: Changing the Ground Rules of the Networking Game"
Howard Sherry (Director- Bellcore) "Progress Report on PCS Wireless Access Standards"

Program

March 16 - Tutorial 1 to 4 P. M.

What is PCS? - Phil Peterson (Motorola)
Networks Today and Tomorrow - Brenda Edwards (Bell Atlantic)
How Might PCS Work for Voice and Data Services? - Dwight Hakim (Bellcore)

March 17 - Sessions 8:30 A.M. to 5 P.M.

AM - Session 1 - Services & Architectures

This session will address the anticipated service needs of users of personal communications and potential network architectures that can meet those needs. The papers will focus on topics such as personal and service mobility, interconnection of wireless and wireline networks, and support for data as well as voice communications.

PM - Session 2 - Network Management

A key to making PCS a success will be the ability to adequately manage the service. This session will describe rapid PCS service activation and some of the operations procedures and tools applied in recent PCS trials that include internetwork testing, processes for fault isolation and trouble resolution.

March 17 - Reception
6 to 8 P. M.

March 18
Sessions

8:30 A. M. to 5 P. M.

AM - Session 3

Network Platforms
& Elements

This session will illuminate how platform technologies such as common channel signaling, intelligent networks and switches can be used to realize the service concepts and architectures described in previous sessions. Specific elements and planning tools for commercial and institutional use will also be discussed.

PM - Session 4 - Implementation Challenges

The principal challenges that need to be addressed for PCS to be successful in the US will be discussed, including balancing the desire of PCS Providers for early market entry with the need to develop standard technology to facilitate interoperability and reduce cost, thereby stimulating market demand. In addition, the technical and regulatory issues surrounding billing, interconnection tariffs, etc., that must be addressed for successful PCS rollouts will be discussed.

Hotel Information: Ocean Place Hilton

One Ocean Boulevard

Long Branch, NJ, 07740

Phone: 908-571-4000 Fax: 908-571-3314

Registration Chairman

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908-949-4497

jmp@hoqub.att.com

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Registration Form

Name_____

Address_____

Phone Number_____

Company_____

Credit Card (circle one): AMEX VISA Master Card

Number_____

Expiration Date_____

Signature_____

Date_____

Before Feb. 25, 1994 After Feb. 25, 1994

Registration (Sessions, Reception, Proceedings, Lunches)

IEEE Member \$250.00_____ \$300.00_____

IEEE Membership Number_____

Non-Member \$300.00_____ \$350.00_____

Tutorial \$45.00_____ \$75.00_____

Extra Proceedings \$25.00_____ \$40.00_____

Total Remittance (Must be in U. S. Dollars) \$_____

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No refunds on cancellations made after March 1, 1994

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North Jersey PES/IAS:

Protecting
Generators

On February 17, 1994, the North Jersey Power Engineering/Industry Applications Society Chapters will present a talk on "Protection Of Generators Using Micro-processor Based Technology." The speaker will be Chuck Mozina of Beckwith Electric Company in Largo, Florida.

About The Talk

The presentation will discuss the protection of generators from small (kW range) to large size units (100s of MW). It will discuss the system considerations in the connection of small co-gen machines to the utility system and the many advantages of using cost effective micro-processor based relaying to protect generators. In addition to short circuit protection, the methods of detection of a number of subnormal generator conditions (loss of field, overexcitation, unbalance current and under-frequency operation) will be addressed. Also outlined will be an approach to providing protection redundancy to address common mode relay failures for larger generators. The benefits of oscillographic data captured by these relays will be discussed as well as the use of this data to more quickly return generators to service after they have tripped off-line.

About The Speaker

Chuck Mozina has over 25 years of experience as a protective engineer at Centerior Energy, a major investor-owned utility in Cleveland, Ohio, and served as the Manager and Chief Corporate Protection Engineer at Centerior for over seven years. He has authored a number of papers and magazine articles on protection relaying including a prize PES working group paper in 1990. He is the 1988 IEEE Cleveland Section Engineer of the Year and a Registered Professional Engineer in the State of Ohio. He is active in the IEEE Power System Relay Committee and is the past Chairman of the Rotating Machinery Subcommittee. He is currently the Manager of Application Engineering - Protection Systems at Beckwith Electric Company in Florida.

All Welcome

Members and guests interested in the meeting topic are invited.

Time: 7:00 PM, Thursday, February 17, 1994.

Place: JCP&L Co., Punch Bowl Room, 300 Madison Avenue, Morristown, N.J.

Reservations/Information:

Ken Oexle (JCP&L) (201) 455-8481; R.V. Rebbapragada (Ebasco) (201) 804-2011 or (212) 839-1473.

North Jersey Section Activities

FEBRUARY 1994

February 2, 1994—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Road, Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

Feb. 9—"Control Applications For Mobile Robots"—No. Jersey Control Systems Society, 7:30 PM, NJIT, Ballroom D, Second Floor, Hazell Student Ctr., 323 Dr. Martin Luther King, Jr. Blvd., Newark, N.J. Tim Chang (201) 596-3519.

Feb. 9—"Fusion Energy: Meeting The Challenge"—IEEE NPSS, Princeton/New Jersey Coast Chapter, 8:00 PM, Princeton University, Engineering Quadrangle, Convocation Room C-217, Princeton, N.J. D. Plummer (908) 219-9553.

Feb. 10—"Continuing Education And The Working Engineer"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave., Morristown, N.J. Robert Sinusas (201) 228-3941.

Feb. 10—"Success Factors In The Malaysian, Taiwanese And Japanese Electronics Industry"—North Jersey Chapter of the Reliability Society, 7:00 PM, ITT Avionics Auditorium, 100 Kingsland Rd., Clifton, N.J. Henry Moss (212) 674-5048.

Feb. 15-April 5—"Seminar: Introductory C Programming"—IEEE North Jersey Section, Tuesday Evenings, JCP&L Co., 300 Madison Ave., Morristown, N.J. John Baka (201) 455-8534.

Feb. 16-April 20—"Seminar: Object-Oriented C++ Programming"—IEEE North Jersey Section, Wednesday Evenings, JCP&L Co., 300 Madison Ave., Morristown, N.J. John Baka (201) 455-8534.

Feb. 17—"Protection Of Generators Using Microprocessor Based Technology"—North Jersey PES/IAS, 7:00 PM, JCP&L Co., Punch Bowl Room, 300 Madison Ave., Morristown, N.J. Ken Oexle (201) 455-8481.

Feb. 23—"Recursive T-Matrix Algorithms For Electromagnetic Scattering Problems"—North Jersey MTT-S, 7:00 PM, NJIT, 202 ECEC, Newark, N.J. Dick Snyder (201) 492-1207.

Feb. 24—"Distributed Interactive Simulation (DIS)"—Joint North Jersey Chapters IEEE Computer Society and IEEE Systems, Man & Cybernetics Society, 7:30 PM, Fairleigh Dickinson Univer., Rm. M-207 Muscarelle Bldg., Teaneck, N.J. Dr. M. Liechenstein (201) 471-0721.

Feb. 24—"Advanced Computing And Information Technology In Biomedical Research"—NY/NJ/LI EMBS, 7:30 PM, Rockefeller Univ., Tower Bldg., Room 305, 1200 York Ave., NYC. Joel Levitt (718) 891-6460.

Feb. 24—"Seminar: Reliability Assessment—An Essential Ingredient Of Managing Quality And Cost"—NJ Section IAS & PES Chapters, JCP&L, 300 Madison Ave., Morristown, N.J. Vittal Rebbapragada (201) 804-2011.

Feb. 24—"Selling And Marketing More Easily In The 90's"—No. NJ Consultants' Network, 7:30 PM, GEC-Marconi Facility, 150 Parish Drive, Wayne, N.J. Jim Boyd (201) 584-0329.

Feb. 24—"Consulting Engineering As A Career"—NY/LI PES & IAS, 6:00-7:30 PM, Con Edison Headquarters, 4 Irving Place, NYC. S. Weaver (212) 650-7154.

Upcoming Meetings

Mar. 2—"North Jersey Section Executive Committee Meeting"—7 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

Mar. 2-April 20—"Seminar: Electrical Safety In Hazardous Locations"—NJ Section ISA and NJ IAS of IEEE, 8 Sessions, Wednesday Evenings, 7:00-9:00 PM, Automatic Switch Co., Training Room, 50-60 Hanover Rd., Florham Park, N.J. Stan Rogacki (201) 316-3369.

Mar. 9—"Transistor Models For GaAs MMIC"—NJ Section MTT-S, 7:00 PM, NJIT, 202 ECEC, Newark, N.J. Dick Snyder (201) 492-1207.

Mar. 10—"How To Find Money In Your 1040"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Avenue and Punch Bowl Rd., Morristown, N.J. Robert Sinusas (201) 228-3941.

Mar. 17—"Application Of Adjustable Speed Drives—Technical Issues"—North Jersey PES/IAS, 7:00 PM, JCP&L Co., Punch Bowl Room, Morristown, N.J. Ken Oexle (201) 455-8481.

April 25-26—"Computer Integrated Manufacturing In The Process Industries (CIMPRO '94)"—National Science Foundation and Defense Logistics Agency, Brunswick Hilton Hotel, East Brunswick, N.J. For information: Ms. Cindy Ielmini (908) 932-3654 FAX (908) 932-5467.

New Jersey Section Instrument Society of America
and the
Industrial Applications Society — NJ Section, IEEE
ELECTRICAL SAFETY
IN HAZARDOUS LOCATIONS

Eight sessions, Wednesday evenings
March 2, 9, 16, 23, 30 and April 6, 13, 20 - 7:00 to 9:00 PM
Automatic Switch Co. (ASCO) Training Room
50-60 Hanover Rd., Florham Park, N.J. (Near Route 10, east of Route 287)

Designing the installation of electrically operated instruments in hazardous areas can be a source of confusion and doubt, resulting in a tendency towards misapplication and unnecessary expense. ISA, NFPA, and NEC codes and standards exist, but you need to understand the basics before you can interpret them in a cost effective and accurate way.

This 8-session course will provide participants with in-depth presentations on the theory and practice of safe electrical installations in classified locations. Purging, explosion proof techniques and intrinsic safety will be covered. Weekly topics are listed below.

The course instructor will be Mr. Ernie Magison, world renowned author and instructor of ISA short courses, the Manager of Regulatory Affairs, Honeywell, Inc. 1.6 Continuing Education Units (CEUs) will be awarded upon satisfactory completion. The ISA text, "Electrical Instruments in Hazardous Locations," by Mr. Magison will be the course text.

March 2 -	Historical background, the National Electric Code, area classification, material classification.
March 9 -	Theory of explosions and the ignition of gases and vapors by electrical sources.
March 16 -	The methods of hazard reduction - overview, explosion proof enclosures.
March 23 -	Principles of intrinsically safe and nonincendive systems and equipment.
March 30 -	Design of intrinsically safe and nonincendive systems and equipment.
April 6 -	Pressurization, continuous dilution, sealing and encapsulation.
April 13 -	Dust hazards, flame arrestors, human safety.
April 20 -	Installation, inspection, and maintenance.

When:	Wednesday evenings, March 2, 9, 16, 23, 30 and April 6, 13, 20
Time:	7:00 - 9:00 PM
Where:	Automatic Switch Co., (ASCO) Training Room 50-60 Hanover Rd., Florham Park, N.J.
Fee:	\$350 IEEE/ISA Members \$405 Non-Members (includes 1 year ISA Membership)

Registration Form

"Electrical Safety in Hazardous Locations"

To Course Registrar:

Mr. Stan Rogacki, P.E., New Jersey ISA Education Chairman
143 Mountain Ave., West Caldwell, NJ 07006
Phone: (W) (201) 316-3369 (H) (201) 228-8841 FAX: (201) 228-6272

Name _____

IEEE/ISA No. _____

Company _____

Title _____

Company Address _____

Company Phone _____

FAX No. _____

My check is enclosed for \$ _____

payable to "ISA New Jersey Section"

No refunds after a class begins. Call for directions.

No. Jersey-Control Sys. Soc.:
Control
Applications For
Mobile Robots

The February 9, 1994 meeting of the North Jersey Section IEEE Control Systems Society will feature a talk on "Control Applications For Mobile Robots." The speaker will be Mr. Alan Santucci, of the Automation and Robotics Laboratory at Picatinny Arsenal.

About The Talk

A common goal of the many research and development projects in the area of automated mobile platforms has been the development and construction of completely autonomous vehicles capable of functioning in some intelligent fashion. However, even the most basic problems of navigation and collision avoidance encountered in such projects have been found to be very difficult to solve in any environment more general than that of a very structured laboratory.

The speaker will review the types of sensors that have been used to solve these problems in the past and then suggest how new technology can be applied to find alternative solutions to the navigation problems associated with automated mobile platforms. He will then describe the capabilities that his laboratory group has incorporated in the autonomous testbed that they have developed for material handling applications. He will present video tapes of such vehicles in action and of a simulation tool being used to generate the state tables for the control rules being designed.

About The Speaker

Alan Santucci has been a Research Scientist and Project Engineer in the Fire Control Division of the U.S. Army Armament Research, Development and Engineering Center (ARDEC) at Picatinny Arsenal in New Jersey, since 1981. Since 1985, he has been a Project Engineer for the Automation and Robotics Laboratory working in the fields of robotic control, image processing, autonomous navigation and digital signal processing. His work has focused upon basic research on autonomous robots and their application to labor intensive tasks.

Free Pre-Meeting Buffet

Reservations recommended for the pre-meeting buffet which starts at 6:00 PM followed by the meeting at 7:30 PM.

Time: 7:30 PM, Wednesday, February 9, 1994.
Place: Ballroom D, (please note this room location is new), second floor, Hazell Student Ctr., NJIT, 323 Dr. Martin Luther King, Jr. Blvd., Newark, N.J.
Reservations/Information: Tim Chang (201) 596-3519; Fred Chichester (201) 744-7340.

IEEE North Jersey Section Seminar
Object-Oriented C++ Programming

Wednesdays, February 16 - April 20, 1994 6:30-9:00 PM
Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.

The North Jersey Section is offering an evening course entitled "Object-Oriented C++ Programming." Object-Oriented programming has been described as the biggest advance in computer programming since the creation of higher level languages 30 years ago. Instead of focusing on functionality (what the programs do) it focuses on the natural objects comprising the problem and how they, and their capabilities, are modeled in the program. C++ is, by far, the most widely used language today for object-oriented design and programming. This course will cover both the concepts of OOD and their implementation in C++ code. The course will begin with a review of common aspects of C and C++ but this time will be too brief to learn C. **THEREFORE ONLY THOSE WHO ARE FAMILIAR WITH C SHOULD REGISTER FOR THE C++ COURSE.**

There will be 9 weekly lectures and homework will be assigned and corrected. The topics listed below will be covered. The instructor is Dr. Edward (Ted) Byrne, owner of a software consultant business.

- (1) - Review common elements of C and C++: punctuation and keywords, variable naming, typing and scope, functions and subfunctions, arguments, operators and assignments, conditionals and logical variables, looping and testing, handling text strings, arrays and structures, pointers.
- (2) - Concept of Object-Orientation: objects and classes of objects, methods and messages, encapsulation and abstraction, overloading of functions and operators, inheritance and polymorphism.
- (3) - C++ improvements to C: new commands and operators, comments, stream I/O, function prototypes, more explicit typing and linking.
- (4) - C++ implementation of objects: what is a C++ object, data and method functions within an object, public, private and friend, static and dynamic objects, constructors and destructors.
- (5) - Encapsulation and abstraction within C++ objects: references and aliases, scope control operator, 'this' object, overloading, functions, operators.
- (6) - Inheritance and polymorphism among C++ objects: parent class or object, extending classes, redefining object data and methods, multiple inheritance, templates.
- (7) - C++ I/O streams: standard I/O, formatted I/O with manipulators, disk and device I/O.
- (8) - C++ library classes and their use: characteristics of a good library class, conversion base classes, video base classes, window base classes, database base classes.
- (9) - Overall program structure with C++ objects: how to lay out a C++ program, how to reuse classes in a program, how to test and evolve a C++ program, how to find errors and debug C++ object programs.
- (10) - Object-Oriented design methodologies: Booch method, Coad Yourdon Nicola method, Shlaer Mellor method.

Class will be limited to a maximum of 25 with a minimum registration of 15. Early registration is recommended. Phone Reservations will **not** be accepted. Reservations accepted after February 3, 1994 will require an additional **late fee** of \$25. No reservations will be accepted after February 10, 1994.

Where: Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.
When: Nine sessions, Wednesday evenings, starting February 16, 1994, 6:30 PM to 9:00 PM.

Cost: With Text Books and Borland Turbo C++ Compiler, IEEE Members \$280; non-IEEE Members \$360. With Text Books only, IEEE Members \$200; Non-IEEE Members\$280. Make fee payable to **North Jersey Section IEEE.**

Contact: Mr. John A. Baka at (201) 455-8534 (Business)

Registration "Object-Oriented C++ Programming"

To: Mr. John Baka, Distribution Engineering, JCP&L Company, 300 Madison Avenue, Morristown, NJ 07962-1911

Name _____

IEEE No. _____

Affiliation _____

Phone No. _____

Address _____

Check if Borland Turbo C++ Compiler is needed or not Yes [] No []

Signature _____

NY/NJ/LI EMBS:
Computing &
Information Access
Technologies

On February 24, 1994, the Metropolitan Section Engineering in Medicine and Biology Society will present a program on "Advanced Computing And Information Technology In Biomedical Research." The speaker will be Dr. Swamy Laxminarayan.

About The Talk

The Federal Government's High Performance Computing and Communications (HPCC) initiative has made advanced computing and information access technologies a vital component in biomedical research and education. This presentation will focus on the implications of these technologies in developing a distributed electronic environment. Topics will include biotechnology resources, scientific visualization, and the impact of the wide range of biomedical resources available on the Internet. Creation of a network-based infrastructure for biomedical sciences education provides significant economic promise in the twenty-first century.

About The Speaker

Dr. Laxminarayan is currently the Program Director of Academic and Research Computing at the University of Medicine and Dentistry of New Jersey, and an Adjunct Associate Professor of Biomedical Engineering at the New Jersey Institute of Technology. He serves as a Member-At-Large of the Administrative Committee of the IEEE Engineering in Medicine and Biology Society (EMBS) and was recently elected to the office of Vice President for Conferences of the EMBS. He is also a Fellow of the American Institute of Medical and Biological Engineering. He did his undergraduate studies at the University of Mysore, India and his graduate work (MSc and PhD) at the University of Southampton.

Time: 7:30 PM , Thursday, February 24, 1994.
Place: Rockefeller Univ., Tower Bldg., Room 305, 1200 York Avenue, NYC.
Directions/Parking: Entrance gate at 66th Street, Free admission. Free parking. By subway—68th on #6 (Lex). By bus—M15, M31, M58, or M66.
Further Information: Joel Levitt (718) 891-6460; Andrew Baxt or Susan Baxt (516) 678-6563.

North Jersey Section PACE:
How To Find
Money In Your
1040

At the March 10, 1994 meeting of the North Jersey Section's Professional Activities Committee for Engineers, the topic will be "How To Find Money In Your 1040." The speaker will be Edward Landau.

About The Talk

Each year taxpayers invest time, and often money, preparing their 1040 tax return, only to file it away after they've paid their dues to Uncle Sam. Make a change and use your completed 1040 to combat increasing tax liabilities.

Participants will be given overlay sheets to use with their own returns that highlight key areas of concern for this tax year's calculations.

Various ways to improve compensation and benefits package at work may be discovered. Participants will look at ways to minimize taxes, increase investment return and protect purchasing power. Thousands of taxpayers loan money to Uncle Sam each year, with no interest gained. Mr. Landau will be available for a question and answer period at the end of the discussion.

About The Speaker

Edward Landau is a Personal Financial Planner with American Express Service Corporation. As a financial planner, he is licensed by the National Association of Securities Dealers in addition to holding NJ Insurance and Securities licenses.

Before becoming a financial planner, Mr. Landau spent over twenty years as an RF Design Engineer, Consultant and Engineering Manager.

Time: 7:30 PM, Thursday, March 10, 1994.
Place: JCP&L Co., 300 Madison Avenue and Punch Bowl Road, Morristown, N.J.
Further Information: Robert Sinusas (201) 228-3941.

North Jersey MTT-S:
Transistor Models
For GaAs MMIC

The topic at the IEEE North Jersey Section Microwave Theory and Techniques Society chapter meeting on March 9, 1994, will be "Transistor Models For GaAs MMIC Design And Simulation." the speaker will be Walter R. Curtice.

About The Talk

It is a significant challenge for micro-wave scientists to develop large-signal models for the GaAs transistors, since the models must be simple enough to execute rapidly in circuit simulation software but sufficiently sophisticated to accurately describe the complex behavior of these devices. The purpose of this presentation is to review the small-signal and large-signal, equivalent circuit

transistor models developed for simulation and for design of GaAs MMICs. These models include: GaAs MESFETs and HEMTs; GaAs/A1GaAs HBTs.

About The Speaker

Walter R. Curtice joined the Raytheon Company in 1962 where he worked on linear-beam and cross-field devices. In 1973, Dr. Curtice joined RCA Laboratories, Princeton, N.J., as a Member of the Technical Staff in the Microwave Technology Center. From 1987 to 1989 he was with Microwave Semiconductor Corp., Somerset, N.J., as manager of Computer-Aided Design and Modeling. He is now an independent consultant.

Dr. Curtice has written over 60 technical papers, has 10 U.S. patents issued to him, and was made a Fellow of the IEEE in 1988. He is past Chairman of the Princeton Section of the IEEE, and was Distinguished Lecturer for the Microwave Theory and Techniques Society of the IEEE for 1990-1992.

All Welcome

Members and guests interested in the subject are invited.

Time: 7:00 PM, Wednesday, March 9, 1994.
Place: NJIT, 202 ECEC, Newark, N.J.
Information/Reservations: Dick Snyder (201) 492-1207; Willy Schmidt (201) 492-0371; Edip Niver (201) 596-3542.

North Jersey PES/IAS:
Election Of Officers

The North Jersey PES and IAS Chapters announce the election of the following officers with a term of office from January 1, through December 31, 1994.

1994 PES Officers

Chairman: R.V. Rebbapragada (Ebasco)
Vice Chairman: Joseph Kane (JCP&L)
Secretary: Dennis Hildenbrand (PKD)
Newsletter Editor: Keith Saracinello (Ebasco)
Professional Activities*: Hady Salloum (Bellcore)
Member Development*: Dennis Sobieski (PSE&G)
Member-at-Large*: Tom Piascik (PSE&G)
Member-at-Large*: Ed Griffith
Member-at-Large*: Ken Oexle (JCP&L)

1994 IAS Officers

Chairman: Ken Oexle (JCP&L)
Vice Chairman: Won Kim (Scherring & Plough)
Secretary: Edward Roeloff (Lederle Labs - Rtd.)
Professional Activities: Dick McFadden (SAIC)
Member-at-Large*: R.V. Rebbapragada (Ebasco)

*(Past Chairman)

Joint Meeting On
Distributed
Interactive
Simulation (DIS)

On February 24, 1994, a joint meeting of the North Jersey Chapters of the IEEE Computer Society and IEEE Systems, Man & Cybernetics Society, will present a talk on "Distributed Interactive Simulation (DIS)." The speaker will be Ms. Colleen Hogan.

About The Talk

Ms. Hogan will talk on DIS, which is an interface protocol that allows interoperability of virtual and real environments. The real environments are provided by tanks or aircraft, for example, and the virtual environments are provided by man-in-the-loop simulators and wholly computer generated objects (A.K.A. stimulators). The protocol, which has been validated as IEEE-1278, will be described. Also discussed will be the domination, until recently, of this area by the U.S. Army in the form of seamless simulations, and the recent realization by the US Navy and Air Force (as well as NATO) that there are potential cost savings inherent in this effective use of computer technology.

About The Speaker

Colleen Hogan is an aerospace engineer with 15 years experience, principally in Research and Development. Her background includes work on satellites, V/STOL aircraft, ECM systems and missiles. She has explored the use of AI and neural networks for EW signal processing and has developed system simulation programs (as lead engineer) and has primary responsibility for Distributed Interactive Simulation at Loral Electronic Systems, in Yonkers, NY. Ms. Hogan has an SB degree from MIT in aerospace engineering.

All Welcome

You do not need to be an IEEE member to attend and there is no admission charge. Light refreshments will be served.

Time: 7:30 PM, Thursday, February 24, 1994.
Place: Room M-207, Muscarelle Bldg., Fairleigh Dickinson Univ., Teaneck, N.J.
Information: Dr. Michael Liechenstein (201) 471-0721 or Melvin Lewis (914) 968-2500, ext. 2304.

No. NJ Consultants' Network:
Selling And
Marketing More
Easily In The 90's

At the February 24, 1994 meeting of the IEEE Consultants' Network of Northern NJ there will be a video presentation by Arthur C. Savage entitled "Selling And Marketing More Easily In The 90's."

About The Topic

The video presentation addresses the following topics:

What are the barriers to effective selling?; How to get in control of the selling situation; How to overcome your reluctance to sell; When to educate your customer; How to stand out from your competition.

About The Speaker

Arthur C. Savage is currently President of the Business Communications Group, Avon, CT. Prior to founding BCG, Mr. Savage was formerly Director of Marketing for the Loctite Corporation, Vice President of Marketing and Sales for the Superior Electric Company, and Marketing Manager for Beckton, Dickenson and Company as well as Adjunct Assistant Professor of Marketing and Sales Management in the University of Hartford's MBA program.

About The Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in April 1992 to encourage and promote the use of independent technical consultants by business and industry. Meetings are held on the last Thursday of each month at GEC-Marconi. The Network's second annual Directory of Consultants is now available. To receive a complimentary copy, call Alex Richardson (201) 992-0448.

Optional Pre-Meeting Dinner

Members are invited to get together at the Steak and Ale Restaurant in the American Way Mall on Rte 46 Eastbound, (right next to Bennigans—after Passaic Ave. and before Willowbrook Mall), in Fairfield, N.J. For directions, call (201) 227-2134. For reservations (**REQUIRED**), call Frank Scholten (201) 994-9819.

Time: 7:30 PM, Thurs. February 24, 1994.
Place: GEC-Marconi Facility, 150 Parish Drive, Wayne, NJ.

Directions: From Intersection of Rte. 23 and Rte. 46, approx 1 mile east to Riverview Dr. North on Riverview for 1.5 miles to traffic light at golf course. Go straight on Valley Rd. to next light; turn left onto Parish Dr. Follow to "T"; left turn for 2 short blocks to Dey Rd. Left on Dey Rd. GEC entrance approx. 100 ft. on right.

Information: For alternate directions and up-to-date meeting status call (201) 736-0771 (Walker Elec. Services 24hr VOICE MAIL). For meeting information or other questions call Jim Boyd (201) 584-0329.

IEEE-IAS and PES Chapters, NJ Section
Seminar on
Reliability Assessment—An Essential
Ingredient of Managing Quality and Cost
Thursday, February 24, 1994
Jersey Central Power and Light HQ, 300 Madison Ave., Morristown, N.J

Topics and Speakers

Keynote and Introduction:	K. Oexle, Sr. Member IEEE Jersey Central Power & Light
Electrical Equipment and Systems: their Contribution to Plant Unavailability and Revenue Loss, an IEEE Std. 493 Perspective	R.V. Rebbapragada, Sr. Member IEEE, Raytheon Engineers & Constructors, Ebasco Div.
Fundamentals and Techniques of Reliability Assessment and Benefit Evaluation	Dr. M.P. Bhavaraju, Fellow IEEE Public Service Elec. & Gas
Reliability Measurement for Management Decision Making	Dr. M. Liechenstein, Fellow IEEE Integrated Technology Service
Management and Analysis for Reliability Growth	Dr. L.H. Crow, Sr. Member IEEE AT&T Bell Labs
Reliability Centered Maintenance, RAM Data Development, and Human Reliability Analysis	R.H. McFadden, Fellow IEEE Science Applications Int'l Corp.
Models for Managing the Cost of Reliability	Dr. R.W. Sears, Sr. Member IEEE, AT&T Bell Labs
Case Study/Example: Reliability Analysis of an Industrial Plant Distribution System	R. Bucci, Sr. Member IEEE Raytheon Engineers & Constructors, Ebasco Div.

Cost: IEEE Members \$150.00; Non-Members \$195.00; Students \$50.00

To reserve your place, make check or money order payable to "IEEE-North Jersey Section" and mail it to Vittal Rebbapragada, Raytheon Engineers & Constructors, Ebasco Div., 1280 Wall Street West, Lyndhurst, NJ 07071 to reach him on or before 2/17/94. (Cost Includes morning refreshments, lunch, and a copy of IEEE Std. 493-1980, *Design of Reliable Industrial and Commercial Power Systems*.)

For Information:

Vittal Rebbapragada (201) 804-2011, or Ken Oexle, (201) 455-8481

PACE By Richard F. Tax
Fellow Members of North Jersey:

Normally this PACE column is dedicated to professional issues, IEEE-USA news, IEEE happenings, employment, engineer shortage propaganda, etc. PACE has had another subtle effect on our North Jersey IEEE Section that most of you are not aware of. PACE, through its focus on professional subjects, has attracted members to the Section's Executive Committee. These people have joined our family of active members and now make things happen at the Section level. They all seem to enjoy this new experience. However, we wish to expand our local services and opportunities for our membership and therefore we need more of you to join our team of players.

It is time for our current Executive Committee members to again reach out to the membership to enhance their interest and encourage them to participate in our activities. Our activities can expand only if we increase our number of volunteers and local meeting places. Presently, we are looking for both new blood and places to meet.

I would like to see a North Jersey Section committee formed to deal exclusively with Personal Computers, hardware, software, new products, courses, seminars, etc. The subject material is without boundaries and I am confident that we can provide enough subjects to hold meetings at least once every month. With more involvement, these meetings can be held more frequently and we can cover everything from basics to computer design. **Call me!**

Please read through this publication and find some subject or Committee of interest to you, call the person listed at the end of the column and ask them how you can get more involved. It's better to be on the inside than on the outside and I am confident you will find this a pleasant and rewarding experience. You can reach me at (201) 664-0803 or write to me at P.O.B. 2012, River Vale, NJ 07675.

Region 1 Awards



Aldo A. Bottani

"For outstanding contributions to IEEE in enhancing the skills of practicing engineers, and in applications of cellular technology"

Aldo A. Bottani recently retired from Metro Mobile as VP of Engineering where he was responsible for all aspects of cellular communication systems design and inter-connection. In this capacity he negotiated interconnection arrangements in seven states. Prior to joining Metro Mobile, he spent 40 years in the land mobile communication businesses of ATT and Bellcore. His assignments included: engineering; pricing; and market responsibilities associated with conventional mobile cellular paging, air-ground and maritime communication services. A Senior Member of IEEE, he served as Chairman of the joint New York/North Jersey Management Engineering Section for nearly a decade, scheduling monthly technical meetings. He is an Officer of the North Jersey Section Executive Committee serving as Member-at-Large. Over the past two years, he has been a full-time member of the Planning Committee for the 1993 Vehicular Technology Conference held at the Meadowlands in New Jersey. He was responsible for all meeting logistics, including lodging, banquet, meeting room, visual aids, and coordination with the hotel staffs involved with the Conference.



Melvin A. Lewis

"For extensive contributions in chairing the IEEE 1993 Vehicular Technology Conference, and in enhancing the development of engineering skills"

Melvin A. Lewis is currently a Senior Staff Engineer at Loral Electronic Systems, responsible for the design of military test equipment. He presently serves as Chairman of the North Jersey Section - IEEE Vehicular Society Chapter and served as Chairman of the highly successful 1993 Vehicular Technology Conference held at the Meadowlands in New Jersey. A total of 700 people attended the conference. During the course of his engineering career, he has: lectured at the Newark Museum and at Fairleigh Dickinson University; presented and published technical papers; and secured a patent. He also serves as a Corresponding Scientist/Engineer with the Liberty Science Center in Jersey City, New Jersey, working with grammar school students in completing science projects while developing their interests in scientific and engineering careers.

The Alex Gruenwald Region 1 PACE Award Presented to North Jersey Section IEEE

"For Outstanding Excellence in the Promotion of Engineering Professionalism"



Michael I. Liechenstein

"For distinguished service to IEEE and for professional contributions to industry, government and to the community"

Dr. Michael Liechenstein is currently President of Integrated Technology Services Corporation and a tenured professor of Computer Information Systems and Decision Sciences in the College of Business Administration at St. John's University. A member of IEEE since 1958, Dr. Liechenstein has been active at both the Section and Chapter levels. He has: moved through various Chairs of the Executive Committee of the North Jersey Section; chaired the Systems, Man and Cybernetics Society Chapter; served as an invited lecturer at IEEE meetings/seminars; chaired numerous IEEE committees and has had key roles in organizing several IEEE conferences and seminars. Most recently he served as Vice-Chairman of the highly successful Vehicular Technology Conference held in May 1993 at the Meadowlands in New Jersey.

Dr. Liechenstein has been called upon by the United Nations and other government organizations and commissions to provide consulting services and expert testimony. He has extensive research publications and has been recognized by both governmental and commercial organizations for the high calibre of his technical consulting activities.

IEEE North Jersey Section Seminar "Introductory C Programming"

Tuesday Evenings, February 15 - April 5, 1994, 6:30-9:00 PM
Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.

The North Jersey Section is offering an evening course entitled "Introductory C Programming." C is one of the most widely used computer programming languages because it is powerful, portable and permissive. It is also the basis for C++, the popular object-oriented programming language. This course will be an introduction to C and will cover all the basics of the language as well as emphasizing C's philosophy or world view. The course will cover ANSI C on the PC but, because there are C compilers for most computers, the expertise will be applicable from PC through mainframe. The C techniques learned will be useful on their own, and also will be a preparation for either an advanced C course or a C++ course. There are plans to offer both in the future.

There will be 8 weekly lectures and each will be followed by a short optional work session. Homework will be assigned and corrected. The topics listed below will be covered. The instructor is Dr. Edward (Ted) Byrne, owner of a local software consultant business.

- (1) - Background of computers, operating systems, compilers and high-level languages.
- (2) - Introduction to C and the parts of a real C program: philosophy of C vs other languages, ANSI vs older C nature and constituents of a simple C program, C program examples (ongoing).
- (3) - Reserved words, variables, declaration and definition, parameters, permanent,temporary, local and global data.
- (4) - Branching: simple and compound statements, relational operators and expressions and their use in branching, various kinds of branch statements.
- (5) - Loops and Conditions: various ways to enter and exit a loop, auto-incrementing, statement labels, goto.
- (6) - Formatted and character I/O: output to screen, input from keyboard, formatting, file and device input and output.
- (7) - Defensive programming and debugging: debugging levels, asserts, lint, case tools.
- (8) - Functions, subfunctions and arguments: names, arguments, return value, main program arguments, exit, return levels.
- (9) - Text and Libraries: character data type, string data type, characteristics of strings, libraries, and header files, #include statement, common functions, #define.
- (10) - Groups of similar and dissimilar data items: arrays, structures, indexing, items.
- (11) - Introduction to pointers: concept of a pointer, addresses, pointer arithmetic, indirection.
- (12) - Introduction to some advanced topics in C: touch on graphics, unions and enums,casts, typedefs, bit variables and operators, switch statement and case and default, conditional assignment.

Class Size will be limited to a maximum of 25 with a minimum registration of 15. Early registration is recommended. Phone Reservations will **not** be accepted. Reservations accepted after February 3, 1994 will require an additional **late fee** of \$25. No reservations will be accepted after February 9, 1994.

Where: Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.
When: Eight sessions, Tuesday evenings, starting February 15, 1994 from 6:30 PM to 9:00 PM.

Cost: With Text Books and QuickC compiler, IEEE Members \$275; Non-IEEE Members \$350. With Text Books only, IEEE Members \$ 200; Non-IEEE Members \$275. Make checks payable to: **"North Jersey Section IEEE"**

Contact: Mr. John A. Baka at (201) 455-8534 (Business)

Registration "Introductory C Programming"

To: Mr. John Baka, Distribution Engineering, JCP&L Company, 300 Madison Avenue, Morristown, NJ 07962-1911

Name/IEEE No. _____

Affiliation _____ Phone No. _____

Address _____

Check if QuickC Compiler is needed or not Yes [] No []

Signature _____

Princeton/NJ Coast NPSS: Fusion Energy: Meeting The Challenge

The IEEE Nuclear and Plasma Sciences Society (NPSS), Princeton/New Jersey Coast Chapter, will present a colloquium "Fusion Energy: Meeting The Challenge." This meeting will take place February 9, 1994. The speaker will Dirk Arnold Plummer, P.E.

About The Topic

Controlled thermonuclear fusion is undergoing intense study and development as a possible replacement source of energy. This initiates a requirement for a suitable container to hold ongoing fusion reactions. A satisfactory container will protect the people outside it from radiation and will not disturb, cool, or quench the reaction. Its disposal should not create a radiation hazard. Inertial and magnetic confinement have been selected for development and constitute the major distinguishing characteristic for the two most favored reactor prototypes. This presentation introduces both, giving preliminary looks at and suggestions for the extraction of power, either directly or by conversion from heat generated in surrounding materials. It focuses on fusion reactor control.

About The Speaker

Dirk Plummer received an SB in Chemical Engineering from MIT., a BS in Electrical Engineering from Univ. of Calif., Berkeley, and an MS in Electronic Engineering from Monmouth College. He has worked in industry, performing the design of the Plainsboro Industrial Reactor Laboratory cooling and purification system, and in Government, as in-plant representative for the Lunar Orbiter power and communications subsystems at RCA Astro-Electronics Division in Hightstown. He is currently working on his own as a professional engineer.

Time: 8 PM, Wednesday, February 9, 1994.

Place: Princeton University, Engineering Quadrangle, Convocation Room C-217, Princeton, N.J.

Information/Directions: Charley Bowman (609) 490-2132; Dirk Plummer (908) 219-9553.