

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

Tuesdays, May 17 - June 28, 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. Seven lectures will be held on Tuesday while two other lectures will be held at the discretion of the class to complete the course by July 1, 1994. 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.	
Where:	Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.
When:	Nine sessions, Tuesday evenings, May 17-June 28, 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.
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 []

Please enclose required fee payable to **North Jersey Section IEEE.**

Signature _____



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

MAY, 1994

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Time/Frequency
Technology
State-Of-The-Art

On May 3, 1994 the IEEE North Jersey Section MTT-S/AP-S and NJIT will present “Time And Frequency Technology State-Of-The-Art.” The speaker will be Hugo Freuhauf.

About The Talk

This presentation will be a technical tutorial especially designed for engineers and scientists as well as operation people, and will offer:

1. An update of the state-of-the-art in precision oscillators and a comparison of these technologies: Quartz Crystal, Rubidium Atomic, Cesium Atomic, and Hydrogen Maser Atomic Oscillators.
2. Understanding the important oscillator specs: Definitions of the parameters specified; Allan Variance stability measurements; Frequency and time domain; Environmental considerations.
3. Time and time/frequency transfer via GPS and other precision time and frequency signals: Establishment of UTC and GPS time; Available T/F transfer sources; Transfer via GPS to rubidium or quartz flywheels; GPS Selective availability.
4. Applications: Various commercial and military systems.

About The Speaker

Hugo Fruehauf is the Vice President and General Manager of Ball Efratom Time and Frequency Products, in Irvine, California and Ball Afratom Elektronik GmbH in Hofolding (Munich) Germany. Efratom is the leading developer and manufacturer of miniature Rubidium Atomic Oscillators and precision sub-miniature Quartz Crystal Oscillators. Mr. Fruehauf has been in this function for over 10 years, concentrating on the advancement of navigation and communication systems through the use of atomic oscillators and the interfacing of the GPS Global Positioning Satellite system for time and frequency.

Prior to Efratom, Mr. Fruehauf spent 15 years at Rockwell International involved in satellite systems design. He is the author of “Precision Time and Frequency” handbook, and has written many articles and papers about this subject.

All Welcome

Members and guests interested in the subject are invited.

Free Pre-Meeting Buffet

There will be a free pre-meeting buffet for attendees at 6:PM courtesy of CDB Enterprises, Inc.

Time: 7:00 PM, Tuesday, May 3, 1994.
Place: NJIT, ECEC202, Newark, N.J.
Information/Reservations: Dick Snyder (201) 492-1207; Willy Schmidt (201) 492-0371; Edip Niver (201) 596-3542 (NJIT).

Publication No: USPS 580-500

"The IEEE Newsletter" (North Jersey Section), is published monthly except July by The Institute of Electrical and Electronics Engineers, Inc. Headquarters: 345 East 47th Street, New York, N.Y. 10017-2394. \$1.00 per member per year (included in annual dues) for each member of the North Jersey Section. Second-class postage paid at New York, N.Y. and at additional mailing offices. Postmaster send address changes to: "The IEEE Newsletter," 445 Hoes Lane, P.O. Box 1331, Piscataway, N.J. 08855-1331. USPS 580-500.

NEWSLETTER STAFF

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Business Manager..... A.M. Beattie

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.

IEEE North Jersey Bulletin Board System:
0 TO 9600 baud, 8 bits, no parity, 1 stop bit,
BBS phone number: 201 669-8268
(Courtesy of United Societies of Engineering & Science of NJ, Inc.)

REPORT ADDRESS CHANGES TO:

IEEE Service Center
445 Hoes Lane, P.O. Box 1331
Piscataway, N.J. 08854-1331
(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.

North Jersey Section PACE: Member Needs In The 21st Century

At the May 12, 1994 meeting of the North Jersey Section's Professional Activities Committee for Engineers, the topic will be "Meeting Member Needs In The 21st Century: IEEE Strategies For The Future." The speaker will be John H. Powers, General Manager and Executive Director, IEEE, Piscataway.

About The Talk

In the summer of 1992, a retreat involving volunteer leaders and IEEE staff was held to initiate the development of a strategic plan to lead the Institute into the 21st century. A first draft of the plan was prepared by the IEEE Strategic Planning Committee in November 1992, and revised in January, February, and April 1993. The April draft was distributed widely to members, Sections, Societies, and the major Boards of the Institute. After receiving and considering hundreds of comments and suggestions, the Strategic Planning Committee prepared a revised version for review and approval by the Executive Committee and Board of Directors.

Mr. Powers will discuss the goals of this strategic plan which encompasses: Career Enhancement; Globalization; Organizational Improvement; Products and Services; and Public Responsibility.

About The Speaker

John H. Powers joined the IEEE staff in 1990 as Associate General Manager for Volunteer Services. He was named General Manager and Executive Director of the IEEE in 1992. Prior to joining IEEE Mr. Powers was employed by IBM Corporation for 26 years. His last position at IBM was as Manager of Manufacturing Technical and Business Operations at IBM's East Fishkill, New York facility. While at IBM, he was a founding member of the IBM Academy of Technology, comprised of the company's top 100 engineers.

Time: 7:30 PM, Thursday, May 12 1994.

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

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

IEEE LEO Chapter: Tunable Diode Laser Absorption Spectroscopy

The topic of the IEEE Laser & Electro Optics Chapter meeting on May 18, 1994, will be "Diode Laser Absorption Spectroscopy For Sensitive Gas Phase Chemical Detection." The speaker will be Professor Edward A. Whittaker from the Physics Department at Stevens Institute of Technology. This talk is dedicated to the memory of Prof. T. Hart of Stevens Institute of Technology; a researcher and a gentleman.

About The Talk

Tunable diode laser absorption spectroscopy can serve as the basis for instrumentation capable of very sensitive detection of gas phase molecular species. Recent developments in sophisticated modulation techniques allow this approach to reach theoretical limits in sensitivity under realistic remote sensing conditions. These limits are set by the quantum nature of radiation detection but until recently were often thwarted by such banalities as interference fringes.

Prof. Whittaker will discuss the application of this technology to the quest for greater understanding of gas phase materials processing technologies. In particular, he will discuss data on the detection of molecular radicals in silicon plasma etching gases and how this new information may soon have an impact on semiconductor processing.

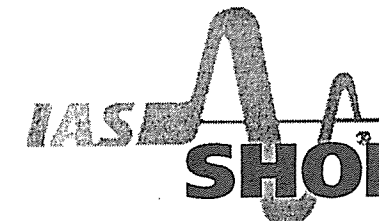
About The Speaker

Professor Whittaker is Associate Professor of Physics and Engineering Physics at Stevens Institute, where he has been since joining the faculty in 1984. Since joining Stevens, he has also engaged in collaborations at Bell Laboratories and David Sarnoff Research Center. His research has covered a wide range of topics in the area of laser spectroscopy and quantum optics. He is currently pursuing research and development of very sensitive, laser and LED based chemical sensors for various remote sensing applications.

Time: 7:00 PM, Wednesday, May 18, 1994.

Place: Stevens Institute of Technology, ECE Seminar Room, Hoboken, N.J.

Information:
Haim Grebel (201) 596-3533.



An IEEE Seminar on

SHORT CIRCUIT ANALYSIS

presented by the IAS and PES Chapters,
New Jersey Section

Thursday, May 19, 1994, 9:00AM to 3:00PM
Jersey Central Power and Light HQ
300 Madison Ave., Morristown, NJ 07962

Topics

- Introduction
 - Seminar overview
 - Reasons for a short circuit study
 - Basic concepts
 - Per-unit system
 - Equivalent circuits
 - Symmetrical components
- How to do a short circuit study
 - Single-line diagram
 - Defining study requirements
 - Determining system impedances
 - Typical impedance data
 - Impedance diagram
 - Calculations
 - Manual
 - Computer
- Interpreting and applying results
 - Interrupter evaluation
 - Circuit breaker ratings
 - Fuse ratings
 - Breaker-fuse combinations
 - Protection coordination
 - Inputs to other studies
 - Harmonics
 - Motor starting
- Case studies
- Review of key concepts

The seminar is based on the "IEEE Brown Book," IEEE/ANSI Std 399-1990, *IEEE Recommended Practice for Industrial Power Systems Analysis*.

Speakers

M. Shan Griffith, P.E., Fellow, IEEE. Electrical Analysis Manager, Brown & Root, Inc., Houston, TX. Working Group Chairman for the IEEE Brown Book.

Richard H. McFadden, P.E., Fellow, IEEE. Chief Electrical Engineer, Advanced Technology Division, Science Applications International Corp., New York, NY. Former Working Group Chairman for the IEEE Brown Book.

R. Vittal Rebbapragada, P.E., Senior Member, IEEE. Senior Consulting Engineer - Electrical Power Systems, Ebasco Services Division, Raytheon Engineers and Constructors, New York, NY.

Cost - including materials, morning refreshments, and luncheon:

IEEE members	\$150.00
Non-members	\$195.00
Students with valid ID	\$50.00

All paid attendees will receive a complimentary copy of the IEEE Brown Book.

Registration opens at 8:30AM

Reserve your place by mailing a check payable to "IEEE North Jersey Section" to R.H. McFadden, SAIC, 8 West 40th St., New York, NY 10018 **by May 7, 1994.**

For information or late registration, call Vittal Rebbapragada, (201) 804-2011, Ken Oexle, (201) 455-8481, or Dick McFadden, (212) 764-2820.

Professional
Activities
Committees for
Engineers NEWS

The following letter is reprinted from the February issue of the *AMERICAN ENGINEER*, a publication of the American Engineering Association, P.O. Box 820473, Ft. Worth, TX 76182-0473. The Executive Committee of the North Jersey Section is to follow up with a letter to President Clinton in support of this letter from AEA. Your comments are encouraged and should be sent to Melvin A. Lewis, Secretary, North Jersey IEEE, 18 Walnut St. Oakland, NJ 07436.

AMERICAN ENGINEERING ASSOCIATION P.O. Box 820473 - Fort Worth, Texas 76182-0473	Tel. (817) 431-1319
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February 10, 1994

The President
The White House
Washington, DC 20500

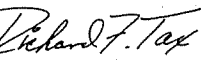
Dear Mr. President:

In preparation for National Engineers Week, celebrated from February 20 to the 26th., you were quoted as saying "America's engineers have much to celebrate." While it may be true that America's engineers may revel in their successes they have now become the forgotten veterans of our technology wars. Corporate down sizing, defense cuts, winning the cold war, the completion of engineering intensive programs and sending manufacturing jobs off-shore has devastated the lives, families and careers of members of the engineering community. I'm sorry Mr. President, but the only celebrations for engineers are "office parties" for those being terminated and more engineering job cuts are pending.

Contrary to conventional wisdom, we do not have an engineering shortage in the U.S. Instead, we are suffering from a glut of engineers and a severe unemployment crisis for engineers of all ages and disciplines. Further, our young engineering graduates, who were encouraged to study engineering, are not getting the engineering jobs for which they studied so hard. This is not something new. The current engineering recession began in 1986 when Congress announced its projected budget cuts. However, spurred by false National Science Foundation engineering manpower shortage projections our nation has increased engineering degree production and is importing more students to meet the demands of our engineering colleges while increasing immigration quotas for those said to have engineering skills. This has further aggravated the employment crisis faced by our engineering community.

Mr. President, we need your help. The other engineering societies, driven by academics concerned primarily about their livelihood of engineering degree production, have failed to address this crisis. As engineers, our concerns are dedicated to the engineering profession and U.S. engineering capabilities and we need your help. I believe the assistance you can provide us will be repaid many times over in enhancing U.S. productivity.

Though, not as obvious as an earthquake, the destruction to engineering careers and our engineering capabilities is just as real.

Respectfully,

Richard F. Tax
Vice President

enclosures

IEEE NJ Coast Section Computer Chapter
PROFESSIONAL DEVELOPMENT SEMINAR
An Overview of Multimedia Technologies
and Services

Dr.A.Narasimhan, Tech.Ed Center, AT&T Bell Labs

ABSTRACT

Multimedia is an emerging and exciting field that requires integration of telecommunication, audio/video technologies, computing hardware and software, and information services.This seminar discusses the concepts of multimedia, why multimedia is becoming a key technology, what are the key applications, and the need for various multimedia component-technologies like compression, storage, hardware/software, etc. An overview of architectural requirements for supporting multimedia will be discussed. New networking technologies such as ATM, wireless LANs, and optical networks used in multimedia systems will be described.The course concludes with a look at future prospects, challenges for multimedia and its potential effect on home entertainment, work environment, communication and computing in the 90s.

Seminar Topics: Video conferencing, Information services,Multimedia collaboration, Interactive TV, Multimedia mail, software and databases. Compression (MPEG, JPEG). Communication technologies: Frame Relay, B-ISDN/ATM, and SONET.Multimedia market trends and its future.

Luncheon Speaker: Dr.Sid Ahuja, Head, Multimedia communications department, AT&T Bell Labs
TOPIC: *Recent advances in Multimedia Communications.*

DATE: Sept 22, 1994 **TIME:** 8.30 am -3pm
LOCATION : Ocean Place Hilton, Long Branch, NJ
REGISTRATION:\$195(non-Mem), \$175(Mem) and \$125 (students), includes coffee, pastries and lunch..

For Information call/contact:
(1) K.Raghunandan,908-577-4202,
Fax:908-577-4537 email: raghu@fjtd.att.com
(2) N.Natarajan,908-758-2078,Fax:908-758-4268,
email: nat@cc.bellcore.com
(3) Bala S. Prasanna, Room 1A-310, AT&T Bell Labs,
480, Red Hill Road, NJ 07748, Tel:908-615-4486,
Fax:908-615-4637, email: joypras @corona.att.com

Early bird Registration : June 15, 1994 (SAVE \$10)
Registration deadline: July 15, 1994

North Jersey Section Activities
MAY 1994

May 3, 1994—"Time And Frequency Technology State-Of-The-Art"—North Jersey Section MTT-S/AP-S and NJIT, 7:00 PM, NJIT, ECEC202, Newark, N.J. Dick Snyder (201) 492-1207.

May 4—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

May 10—"Microprocessor-Based Generator Protection"—PES/IAS NY & LI Chapter, 5:30-7:30 PM, NY Power Authority, 1633 Broadway (at 50th St.) 21st Floor, NYC. For information call Hazem Huss (201) 822-1016.

May 12—"Membership Needs In The 21st Century"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave. & Punch Bowl Road, Morristown, N.J. Robert Sinusas (201) 228-3941.

May 17-June 28—"Seminar: Object-Oriented C++ Programming"—IEEE North Jersey Section, 9-Sessions, JCP&L, 300 Madison Avenue, Morristown, N.J. John Baka (201) 455-8534.

May 18—"Diode Laser Absorption Spectroscopy For Sensitive Gas Phase Chemical Detection"—NJ Section IEEE LEO Chapter, 7:00 PM, Stevens Institute of Technology, ECE Seminar Room, Hoboken, N.J. Haim Grebel (201) 596-3533.

May 19—"Seminar: Short Circuit Analysis"—NJ Section IAS/PES Chapters, 9:00 AM-3:00 PM, JCP&L Company, 300 Madison Ave., Morristown, NJ 07962. V. Rebbapragada (201) 804-2011.

May 26—"Design Issues Related To Powering And Grounding Sensitive Electronic Equipment - IEEE Std. 1100 Perspective"—North Jersey PES/IAS, 7:00 PM, JCP&L, 300 Madison Ave. Morristown, N.J. Ken Oexle (JCP&L), (201) 455-8481.

May 26—"Professional Presentation Skills For Consultants"—No. NJ Consultants' Network, 7:30 PM, GEC-Marconi Facility, 150 Parish Dr., Wayne, N.J. Jim Boyd (201) 584-0329.

Upcoming Meetings

June 1—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Mel Lewis (914) 968-2500, Ext. 2304.

June 9—"The Macroatomic Theory"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave. & Punch Bowl Road, Morristown, N.J. Robert Sinusas (201) 228-3941.

Members and Non-Members Welcome
PLEASE POST

