The IEEE Newsletter

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

NJ Consultants' Network:
Certifying and Licensing Software Engineers

On Thursday, January 25, 2001, the IEEE Consultants' Network of Northern NJ will present a discussion on the Certification and Licensing of Software Engineers. Edward Byrne, a CNNNJ member, will lead this discussion.

About the Talk

When we read about the history of engineering, we continue to find examples of the government jumping in to protect the public. The Romans did it to control roads and aqueducts. The English and then Americans did it 150 years ago to prevent boiler explosions. And we hear about it almost every day now from FAA to FDA, and from internet to encryption.

There is a movement now to Certify and License Software Engineers. No doubt there is good reason because bad software has killed people and bankrupted companies, but this is still very controversial. It was moved to the front burner because the State of Texas passed a law that Software Engineers have to be licensed.

The IEEE Computer Society is very involved in several steps. It has prepared a SWEBOK document stating what a Software Engineer should know, is planning to promote training in these areas and is planning to give examinations, based on that body of knowledge, starting next year.

We will talk about what accreditation, certification and licensing are, how it might apply to Software Engineers, what actions are going on, and make some modest predictions about the future of Software Engineering Professionalism. We will talk about, and give some examples of an examination, but you don't need to pass it!

To conclude the meeting, Ilene Butka, one of our members, will briefly present her skills and interests to the group. This will continue the plan to have such talks at every meeting.

About the Speakers

Edward (Ted) Byrne runs his own consulting company, Flatland Computer Specialties, Inc., teaches programming and software engineering courses, and is a member of the Management Board of the IEEE CS Software Engineering Standards Committee. He has been involved in various aspects of the IEEE CS certification efforts.

Ilene Butka is the President of QualityWare, Inc. She earned a BS degree from Rutgers College in Biochemistry and a MS degree from Fairleigh Dickinson University - School of Science and Engineering in Computer Science. Ilene has more than 15 years experience in software development, testing, validation, and QA for safety-critical applications in the medical device, pharmaceutical, and biologics industries. She specializes in helping her clients understand and comply to their FDA GMP/QS Regulation requirements, and has had many successful encounters with FDA software inspectors.

About the Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in 1992 to encourage and promote the use of independent technical consultants by business and industry.

All Welcome!

You do not have to be a member of the IEEE or of the Consultants' Network to attend. Networking after the meeting is encouraged. There is no charge for admission.

Time: 7:30 PM, Thursday, January 25, 2001.
Place: KDI Triangle, 60 S. Jefferson Road, Whippany, NJ.
Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-4500 or visit our website at www.TechnologyOnTap.org.

IEEE Member - Get - a - Member Campaign

Recruit new members and get a credit voucher and a chance to win 1 FREE IEEE membership for 2002.

End Date: August 15, 2001

Recruit	US$ credit voucher amount
1 - 2 new members	a chance to win 1 year of FREE IEEE membership (odds are 1 in 30 for free membership)
3 - 5 new members	$10.00 + a chance to win 1 year of FREE IEEE membership (odds are 1 in 20 for free membership)
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10 or more new members	One year FREE IEEE membership for the year 2001

Get complete information and the number of membership applications you need by contacting Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239, (201) 461-0900, ext. 234 mornings, FAX (201) 461-0990, email: don@kulite.com.

JANUARY 2001

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 sent to the Business Manager via e-mail at *k.saracinello @ieee.org* or to *The IEEE Newsletter, c/o Keith Saracinello, 25 Messenger Ln, Ringoes, NJ 08551*, (732) 465-4067.

IEEE NJ SECTION HOME PAGE
http://www-ec.njit.edu/~ieeenj/
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REPORT ADDRESS CHANGES TO:
IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, (732) 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.

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The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7:00 PM. Meetings are open to all members. For information on meeting agenda contact Secretary Wayne Owens at (201) 767-3400, ext. 226, wowens@crestron.com.

NY/NJ/LI EMBS:
Free Tutorial: Going from C++ to JAVA

On January 25th, 2001, the North Jersey, New York, and Long Island Chapters of the Engineering in Medicine and Biology Society (EMBS) of the IEEE in conjunction with the IEEE Computer Society will present a FREE TUTORIAL: "Going from C++ to JAVA." The speaker will be Professor Joel H. Levitt.

About the Talk

In this free tutorial session Prof. Levitt will provide an introduction to the programming language JAVA for those who have some familiarity with C++. Cross-platform capability plus special internet capabilities have made JAVA extremely popular in a very short time (it was first created only about 5 years ago) . It is competing with C++ as an option for stand-alone devices used in "smart homes" and can be expected to have increasing application in stand-alone medical devices, as well as general application.

The main difficulty with JAVA compared to C++ is that object oriented programming (OOP) is an option in C++, which can be used where especially appropriate, while in JAVA it must be used for everything. This makes JAVA difficult to learn as a first language.

This   will   be   a   "LOW-TECH", introductory session for those who want to start getting into JAVA.   We will consider only JAVA "applets", small applications which are especially popular due to their web applications. We will see by example how to set up the simplest program, and how to create objects. We will also examine user input, the topic most skimmed over or avoided by introductory texts.

About the Speaker

Professor Levitt holds four degrees from Columbia University and has been a member of the faculty of Pratt Institute for over 25 years. He is the Chairman of our local EMBS chapter.   He has taught computer programming at Pratt Institute to Electrical Engineering undergraduates (FORTRAN) and to computer graphics undergraduate and graduate students (C and C++ languages).   He currently teaches C++ and JAVA at Pratt. He is the author of "Small Signal Analysis- By Computer, By Inspection" Haywood Press 1983, which may have been the first electronics text to fully integrate a presentation of electronics fundamentals with an introduction to computer programming in both BASIC and FORTRAN.

His last five lectures for EMBS were: "Introduction to Programming in C" (Feb. 15 1996), "Domestic Violence and Sugar Metabolism - What's The Connection?" (May 25 1995), "Fighting Anxiety, Depression, and Fatigue, Without Drugs" (Jan. 20 1994),   "Panic Attacks and Sugar Metabolism- What's the Connection?" (Oct. 17 1990), and "Going From C to C++" (Nov.30 2000).

Time: 7:15 PM Registration (no charge), 7:30 PM Lecture, Thursday, January 25, 2001.
Place: Con Edison Executive Dining Room, 4 Irving Place, NY, NY. Travel Hints: One block east of Union Square (14th Street). By subway: L-N-R-4-5-6.
Information: Joel H. Levitt (212) 479-7805 (24 hr voice mail).

Note: The former chairman of the Computer Society, the late Jim Barbera, was instrumental in setting up this joint meeting.

NJ PES/IAS:
CNG Mass Transit Vehicles

On March 15, 2001, the IAS/PES Chapters and the North Jersey Section ASME will sponsor a program on the role of compressed natural gas in powering mass transit cruiser buses in New Jersey. The speaker will be Bill Wells.

About the Talk

Running busses on CNG significantly reduces carbon monoxide emissions, reactive hydrocarbons – the principal ingredient in smog and carbon dioxide emissions, which contribute to the greenhouse effect.   The program will discuss the successful partnership between NJ Transit and New Jersey Natural Gas. NJ Transit has a total of 77 CNG buses that are in daily use transporting commuters from central NJ to New York City.

About the Speaker

The speaker will be Bill Wells of New Jersey Natural Gas.

Time: Exact time TBA, Thursday, March 15, 2001.
Place: The exact location within Morris County will be announced in the February Newsletter.
Information: Ken Oexle (973) 386-1156.

The VT Conference Committee Wants You!! Looking for Volunteers, Sponsors, Exhibitors

The IEEE North Jersey Section is hosting the Fall 2001 Vehicular Technology Conference in Atlantic City, NJ from October 6-11, 2001. And now's your chance to get involved.

Have you ever wondered how a conference comes together? How speakers, tutorials, meals, and many other activities are smoothly integrated? How to produce a powerful technical program of international caliber? How to advertise your company's name on the coffee cups during the lunches and breaks?

Then this is the deal for you. The conference committee is issuing an open call for volunteers to help man its sub-committees. Currently the following have some openings: local arrangements, banquet, publicity, publications, registration, special/social events, transportation, and many others.

But it doesn't stop there. There are special discounts for student volunteers and sponsoring companies. What better way for your organization to get its name out to hundreds of people from worldwide in the mobile communications arena than by becoming Platinum, Gold, or Silver sponsors? You can even tailor your sponsorship to meet your advertising needs. This includes getting tables or floor space to exhibit YOUR products and services to those people with the purchasing power or an all electronic advertisement on the website.

Even students can get involved. There is a significant student admissions discount and does not require any society affiliations. We are also looking for students to man the registration desk and take on other activities. Universities are also welcome to become sponsors.

How can you find out more and get involved? Contact conference chair Art Greenberg at a.h.greenberg@ieee.org or (973) 386-6673, and Industry Liaison/Exhibits chair Stephen Wilkowski at swilkowski@lucent.com or (973) 386-6487. Check out the website at http://www.fallvtc2001.org.

North Jersey Section Activities
January 2001

Jan. 3–"NJ Section Executive Committee Meeting" – 7:00 PM, ITT, 100 Kingsland Road, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or wowens@crestron.com.

Jan. 19–"Harmonics and Power Quality" – NJ IAS/PES Chapters, 8:30 AM to 3:30 PM, Automatic Switch Company (ASCO), Hanover Rd, Florham Park, NJ. R. Vittal Rebbapragada (609) 720-3209 or via e-mail at r.rebbapragada@ieee.org.

Jan. 25–"Certifying and Licensing Software Engineers" – NJ Consultants' Network, 7:30 PM, KDI Triangle, 60 S. Jefferson Road, Whippany, NJ. Robert Walker (973) 728-4500 or www.TechnologyOnTap.org.

Jan. 25–"Free Tutorial: Going from C++ to JAVA"– NY/NJ/LI EMBS, 7:15 PM Registration, 7:30 PM Program, Con Edison Executive Dining Room, 4 Irving Place, NY, NY. Joel H. Levitt (212) 479-7805 (24 hr voice mail).

Upcoming Meetings

Feb. 7–"NJ Section Executive Committee Meeting" – 7:00 PM, ITT, 100 Kingsland Road, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or wowens@crestron.com.

Feb. 15–"With SiGe, Who Needs GaAs?" – EDS/C&S Chapters, Time TBA, Anadigics, 30 Technology Drive, Warren, NJ. David J King (908) 668-5000 Ext. 6644 (dking@anadigics.com).

Feb. 20–Mar. 22 – "Object Oriented C++ Programming" – North Jersey Section, Tuesday and Thursday Evenings, 10 sessions, 6:30-9:00 PM, BAE Systems (formerly GEC-Marconi), 164 Totowa Road, Wayne, NJ. Bhanu Chivakula (973) 751-4879 (b.chivakula@computer.org).

Feb. 22–"The Case of the Disappearing Inventor's Notebook" – NJ Consultants' Network, 7:30 PM, KDI Triangle, 60 S. Jefferson Road, Whippany, NJ. Robert Walker (973) 728-4500 or www.TechnologyOnTap.org.

Mar. 17–"CNG Mass Transit Vehicles" – NJ IAS/PES Chapters, Time and Location TBA. Ken Oexle (973) 386-1156.

Mar. 21–"IEEE Sarnoff Symposium 2001 - Advances in Wired and Wireless Communications" – 8:30 AM - 7:30 PM, The College of New Jersey, Ewing, NJ. Ms. Barbara J. McGivney (732) 280-2022.

Apr. 22–"NJ Section Awards Reception" – at the Birchwood Manor. Reserve this date! Details to follow.

Members and Non-Members Welcome
PLEASE POST

Student Activities Committee Seeks Volunteers and Speakers for Local Branches

The North Jersey IEEE Section Student Activities Committee is looking for volunteers that can help out in the following areas:

1. Branch Mentors to provide one-on-one guidance to local students in running their branches.

2. Speakers on technical and non-technical topics for student lecture series.
3. Section volunteers to help organize events and maintain contact with branches and student leaders.

If you are a recent graduate (GOLD) or long-time member, all are welcome to participate. Please contact chairman Amit Patel at 973-284-2708 or a.j.patel@ieee.org and visit the new website at:

http://ewh.ieee.org/r1/north_jersey/sac

The Case of the Disappearing Inventor's Notebook

On Thursday, February 22, 2001, the IEEE Consultants' Network of Northern NJ will present a talk on "The Case of the Disappearing Inventor's Notebook." The speaker will be Michael Friscia.

About the Talk

An analysis of the function and impact of electronic laboratory notebooks will be presented. Electronic laboratory notebooks have streamlined the data gathering and manipulation aspects of research and development, and have provided inventors with a powerful means for quickly storing and retrieving laboratory data in computer-readable form, while minimizing the required administration support. While such innovations are undoubtedly useful to the scientist and inventor, proper notekeeping must still be practiced to ensure that each aspect of the invention is detailed.

Particularly important issues arise in the context of inventors who utilize such electronic means to document aspects of their inventions. Inventors are well advised to document each step of the inventive process, and to have at least one individual witness the inventive concepts as they develop. Traditionally, this process is achieved by having the witness sign each disclosure after it is written down. Accordingly, difficulties arise in the digital realm as inventors must ensure that the information they record is properly witnessed and signed, while still preserved in computer-readable format. This presentation, therefore, will identify some of the important features and solutions that should be incorporated into electronic lab notebook systems utilized by inventors and scientists alike, so that proper documentation and adequate disclosure are realized.

About the Speaker

Michael Friscia has been practicing in the areas of Patent, Trademark and Copyright Law for over 10 years. He is an adjunct professor at Seton Hall Law School where he teaches courses in Patent Law and Trademark Law. He has extensive experience prosecuting patent applications in the mechanical and electrical arts. He is the Chair of the Intellectual Property Section of the Bergen County Bar Association and serves on the Advisory Board of the Stevens Technology Ventures Business Incubator.

About the Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in 1992 to encourage and promote the use of independent technical consultants by business and industry.

All Welcome!

You do not have to be a member of the IEEE or of the Consultants' Network to attend. Networking after the meeting is encouraged. There is no charge for admission.

Time: 7:30 PM, Thursday, February 22, 2001.
Place: KDI Triangle, 60 S. Jefferson Road, Whippany, NJ.
Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-4500 or visit our website at www.TechnologyOnTap.org.

With SiGe, Who Needs GaAs?

The North Jersey Section IEEE Electron Devices and Circuits and Systems Chapters, in conjunction with Anadigics, Inc., would like to announce the establishment of a joint lecture series. The first lecture will be held on February 15, 2001. Dr. Tak H. Ning of IBM Thomas J Watson Research Center will present, "With SiGe, Who Needs GaAs?"

About the Talk

With SiGe-based bipolar transistors making rapid inroads into high-frequency small-signal and analog applications, there is the question of whether they will permanently displace GaAs or other compound-semiconductor heterojunction bipolar transistors (HBTs). Often the attempts to answer this question have raised more questions because they were based on apple-to-orange comparisons. In this talk, we attempt to make an apple-to-apple comparison of the SiGe and GaAs HBTs by examining and comparing the intrinsic physical properties of the materials and the electrical parameters of these transistors. The comparison is made for devices of comparably advanced structures and of the same design rules. The conclusions are that the commonly practiced SiGe HBT is not really a heterojunction bipolar transistor at all, and that GaAs HBTs are inherently faster than SiGe "HBTs." Therefore, GaAs and other compound-semiconductor HBTs will have a place in applications where the higher speed makes an important difference. The inherent advantage of SiGe bipolar transistor over GaAs HBT lies in its being compatible with CMOS VLSI processing.

About the Speaker

Tak H. Ning received his PhD degree in physics from the University of Illinois at Urbana-Champaign in 1971. He joined IBM Thomas J. Watson Research Center at Yorktown Heights, New York in 1973, where he is currently an IBM Fellow. He has made significant contributions to silicon bipolar, CMOS and DRAM technologies, for which he has been recognized with numerous awards. He is a member of the National Academy of Engineering, and a fellow of the IEEE and of the American Physical Society.

All Welcome!

You do not have to be a member of the IEEE to attend. Refreshments will be served.

Time: Thursday, February 15, 2001. Exact time will be announced in the February IEEE Newsletter
Place: Anadigics, 30 Technology Drive, Warren, NJ. Directions available at www.anadigics.com.
Information: David J King, (908) 668-5000 Ext. 6644, dking@anadigics.com.

IEEE Vehicular Technology Conference

The IEEE Vehicular Technology Society will hold its Fall 2001 Conference on October 6-11, 2001 in Atlantic City. It is one of the major international mobile communications conferences in the world and will be hosted by the North Jersey chapter. Information about the conference is available at www.fallvtc2001.org.

Companies that are interested in sponsorship should contact Steve Wilkowski at swilkowski@lucent.com.

The IEEE & New Jersey Institute of Technology Announce Partnership

IEEE and the New Jersey Institute of Technology's (NJIT) Division of Continuing Professional Education have announced a partnership designed to promote and encourage continuing education and professional development among IEEE members.

IEEE members who enroll in NJIT distance learning courses via the IEEE web site at http://www.ieee.org/eab/PDI/NJITcourses/index.htm will receive a 10% discount off the price of tuition. The NJIT enrollment site joins the IEEE Professional Development Institute (IEEE PDI), gateway website to life-long learning.

NJIT has been recognized by The National Science Foundation as a leader in the development of engineering education for the 21st century. It provides the flexibility that IEEE members need, offering distance learning as well as traditional site instruction. The IEEE member discount is applicable only to the distance learning programs. For more specific information on NJIT's current array of graduate, undergraduate, and certificate-bearing courses and degrees, visit their website at http://www.njit.edu/DL/.

"The IEEE is dedicated to providing its members access to high-quality education programs designed to promote their technical vitality and advance their careers," said Lyle Feisel, Vice President of the IEEE Educational Activities Board. "We are happy that NJIT has joined the IEEE PDI roster and encourage all interested IEEE members to explore NJIT's well respected academic programs and courses."

"We are delighted to be able to offer our courses to IEEE members at this special rate," said Dr. Gale Tenen Spak, Associate Vice-President of Continuing and Distance Education at NJIT. "The breadth of courses available from NJIT allows engineers to acquire the skills needed to shift to fields with better employment prospects, to enter newly emerging cross-discipline fields, or to explore ones that match their maturing interests."

About NJIT
New Jersey Institute of Technology has long been a leader in the use of varied delivery options for reaching the distance learning student. Capitalizing on almost 20 years of experience in delivery of distance learning courses and its in-house technical expertise, computing prowess, and television and multimedia studios, NJIT holds a continually growing inventory of internally-produced distance learning courses that number over 150 and employs two major methodologies to bring engineering, computer science, management, mathematics, chemistry, physics, and other technical subject to student's homes, to professional's desktops, and to the classroom of college students as well as K-12 students. Their commitment to and support of distance learning education had contributed to their receiving recognition from Yahoo! Internet Life for three years in a row as America's Most Wired Public University.

For more information see http://cpe.njit.edu.

About IEEE
The Institute of Electrical and Electronics Engineers, Inc. (IEEE) is the world's largest technical professional society, serving the interests of more than 350,000 members in the information and electrotechnology communities in approximately 215 countries. The Educational Activities Board (EAB) of the IEEE recommends educational policy to the IEEE Board of Directors, and coordinates the Institute's educational activities, programs, and products.

For more information, please contact:

For NJIT: Shelly Zimmerman, Director of Development and Marketing, Division of Continuing Professional Education. E-mail: zimmerman@njit.edu.

For IEEE: Alan Trembly, Manager, Business Development, a.trembly@ieee.org.

Cut the Cord: Introduction to Wireless - Now Available from IEEE

Introduction to Wireless and Personal Communications, an IEEE self-study course, is now available from the IEEE. At the COMDEX 2000 held in Las Vegas, Nevada, L.M. Ericsson Telephone Co. President Kurt Hellström said in a keynote presentation, "We believe that the mobile Internet will soon be bigger than the fixed Internet. It will happen for the same reasons the cords of the telephone were cut. It appeals to a basic human need for freedom and convenience."

Don't be left behind in the wireless transformation. Get the fundamentals from this self-study course.

Dr. Vijay K. Garg has designed this course to provide basic understanding of wireless and personal communications. It includes an overview of the basics of telecommunication systems and traffic engineering; an introduction to cellular/PCS systems, radio propagation; and the fundamentals of radio technology. The course focuses on information processing in wireless communications and explores the fundamentals of wireless mobile communications.

After completing this course, you will be able to:

♦ demonstrate an understanding of the basics of teletraffic engineering,
♦ examine information processing in a wireless system (speech coding, channel coding, interleaving, modulation, etc),
♦ recognize components of a cellular / BCS system,
♦ develop propagation models and estimate path loss,
♦ discuss antenna systems and link budget,
♦ describe 2G North American and European cellular systems.

The course package comes with a study guide, final exam, and the best-selling Prentice-Hall book by Dr. Garg and Joseph E. Wilkes, *Wireless & Personal Communications Systems*. Upon successful completion of the exam, students are eligible to receive eight (8) IEEE Continuing Education Units (CEUs).

Vijay K. Garg is a Distinguished Member of the Technical Staff at Lucent Technologies, Inc. His professional responsibilities include design of GSM-based systems, evaluation of the performance and capacity of mobile switching centers, and specification of operations system requirements for wireless networks.

To order use code HL5758-TCU: IEEE member price: $350.00; list price: $450.00 from the IEEE Customer Service Department, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331, USA; e-mail: customer-service@ieee.org; phone: +1 800 678 4333 (USA and Canada), +1 732 981 0060 (worldwide); Web: http://shop.ieee.org/store.

For a complete listing of educational products see http://www.ieee.org/organizations/eab/cathome.htm.

IEEE North Jersey Section Course
Object Oriented C++ Programming

Tuesday and Thursday Evenings, February 20, 2001 through March 22, 2001 (No class on Feb. 22)-ten bi-weekly classes
(February 20, 27, March 1, 6, 8, 13, 15, 20, 22 and 27, 2001)
BAE Systems (Formerly GEC-Marconi), 164 Totowa Road, Wayne, NJ
(Checks should not be mailed to this address)

The North Jersey Section IEEE is offering an evening course entitled "Object-Oriented C++ Programming." The Object-Oriented concept is very widely used today in new design and programming work. 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 the most widely used language today for object-oriented design and programming. But O-O programming is still programming, so the course will begin with the elements of procedural programs and using C++ as a better C language. It will then move on to Object-oriented programming. The course will cover concepts, implementation and practical aspects of using C++ code.

A knowledge of C programming is not necessary to take the course, but, because neither C nor C++ are elementary programming languages, a familiarity with foundation programming concepts will be very helpful.

TOPICS

1. Review common elements of C and C++: punctuation and key words, variable naming, typing and scope, libraries, text strings, arrays, structures and pointers.
2. C++ procedural programs: conditionals and logical variables, looping and testing, subfunctions and arguments. Debugging.
3. Concept of Object-Orientation: objects and classes of objects, methods and messages, encapsulation and abstraction, overloading of functions and operators, inheritance and polymorphism.
4. C++ improvements to C: new commands and operators, comments, stream I/O. function prototypes, more explicit typing and linking.
5. 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.
6. Encapsulation and abstraction within C++ objects: references and aliases, scope control operator, 'this' object, overloading, functions, operators.
7. Inheritance and polymorphism among C++ objects: parent class or object, extending classes, redefining object data and methods, multiple inheritance.
8. C++ I/O streams: standard I/O, formatted I/O with manipulators, disk and device I/O.
9. C++ library classes and their use: characteristics of a good library class, conversion base classes, video base classes, window base classes, database base classes.
10. 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.
11. Other topics: object-oriented design methodologies, templates and the standard template library, namespaces and interactive program design. Object programs in the Windows environment. Evolution of C++. Commonality and differences with Java.

Class size will be limited to a maximum of 25 with a minimum of 15. Early registration is recommended. Phone reservations will NOT be accepted. Reservations accepted after February 6, 2001 will require a late fee of $25. No reservations will be accepted after February 13, 2001.

WHERE: BAE Systems (Formerly GEC-Marconi), 164 Totowa Road, Wayne, NJ. (Checks **should not** be mailed to this address)
WHEN: 10 Sessions, Tuesdays and Thursdays, February 20, 27, March 1, 6, 8, 13, 15, 20, 22 and 27, 2001, 6:30-9:00 PM.
COST: With text book or notes: IEEE (& affiliate) members $300; Non-IEEE members $400.
CONTACT: Bhanu Chivakula 973-751-4879 (leave message) or email b.chivakula@computer.org

REGISTRATION: OBJECT-ORIENTED C++ PROGRAMMING

To: Mr. Naz Simonelli, 68 Woodmont Drive, Randolph, NJ 07869-3740 **(Checks with registration form should be mailed to this address)**

Name: / Mr. / Mrs. / Miss / Ms. / _____ _____

 ⌄
 Non-member   ✎email address✎

 ⌄
 IEEE Member   Member #:_____ Member of _____ technical society

Employer:_____

Employer Address:_____

_____

Home Address:_____

_____

Business (day) telephone #:_____ Home telephone #:_____

Please enclose required fee payable to: **North Jersey Section IEEE**
Registration status will be mailed after February 13, 2001. Phone inquiries concerning registration will NOT be honored. In general, the effective date of the application corresponds to the date when BOTH a fully completed application/registration and payment are received.

 ⌄
 Tuition receipt will be mailed only if this box is checked   Signature:_____

Harmonics and Power Quality

A One-Day IEEE Seminar
Presented by the IAS and PES Chapters, North Jersey Section
January 19, 2001   8:30AM to 3:30PM

The "60Hz" power system is rapidly becoming a thing of the past. Engineers need to know how to design, analyze, and operate distribution systems that carry 60 Hz plus a substantial load of other frequencies.

Why? Non-linear loads (those that draw a non-sinusoidal load current from a sinusoidal voltage source) generate harmonic current and voltage components, while periodically-varying loads that modulate the fundamental-frequency current generate interharmonics (currents and voltages at frequencies that are rational fractions of the fundamental). The resulting problems can include transformer overheating (or derating to avoid overheating), overheating of synchronous-machine rotor bars, blowing of capacitor bank fuses due to resonance at a harmonic frequency, communications interference, control system malfunctions, erroneous firing of thyristor converters, CRT image fluctuations, and lighting flicker. Harmonics-related problems can only become more common as microelectronic power supplies and adjustable-speed drives account for an ever-growing proportion of the load (predicted to exceed 50% in some areas by the year 2000).

This seminar is designed for industrial-plant, power utility, and commercial-building power system engineers. It will provide a comprehensive introduction to power system harmonics: where they come from, their effects, and how to analyze and alleviate them.

♦ Introduction and Overview	♦ Drive Systems:
♦ Sources of Harmonics	– Synchronous Machines
♦ Practical Definition for Powers in Systems with Nonsinusoidal Waveforms	– Induction Machines
	– Inverter Power Supplies
♦ Harmonic Analysis by Manual and Computer Methods	♦ Filters and Other Harmonics Mitigation Methods: Principles and Applications
♦ Shunt Capacitors and Resonance	
♦ Effects of Harmonics on:	♦ Power Quality Measurements and Instrumentation
– Utility Distribution	♦ Standards Governing Limits on Harmonics
– Industrial Distribution	♦ Case Studies
– Instrumentation and Control	♦ Open Discussion
– Power Systems	

SEMINAR LEADERS:	The seminar will be conducted by industry experts & IEEE distinguished lecturers
LOCATION:	Automatic Switch Company (ASCO), Hanover Road, Florham Park, NJ (973-966-2000) Directions from Route 287: Take I-287 to Exit 37 (NJ 24 East - Springfield). Take NJ 24 East to Exit 2B (Columbia Turnpike). Proceed 2.2 miles to Hanover Road (6th set of traffic lights). Turn left on Hanover Road (Afton Restaurant). Automatic Switch will be on the right (0.4 miles). Enter first driveway marked shipping/receiving and proceed to visitor parking lot on the left. Follow sidewalk to office entrance door.
COST:	Includes materials, morning refreshments, and luncheon: IEEE members $125, Non-IEEE members $175, Students with valid ID $25. Group discounts of 50% will be given if three or more attendees from the same company are registered. $25.00 will be deducted for IEEE members and nonmembers (not students) whose registration fees are received by January 9, 2001!
INFORMATION:	R. V. Rebbapragada, Washington Group, International, 510 Carnegie Center, Princeton, NJ 08540, phone 609-720-3209, fax 609-720-3598, e-mail r.rebbapragada@ieee.org

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