

The



# IEEE Newsletter

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

*NJ Consultants' Network:*

## National Instruments – “that GPIB Company”

On Thursday, September 28, 2006, the IEEE Consultants' Network of Northern NJ is pleased to present "National Instruments – “that GPIB Company”", by Jeff Steele.

### About the Talk

The IEEE CANNJ has invited Jeff Steele, National Instruments, to emcee the feature presentation for our September meeting, and we invite everyone to come to this special event!

- Who is National Instruments?
- What problems can they help you solve?

Depending on when you have looked at National Instruments you might say “They're that GPIB Company” or “They make LabVIEW”. Traditionally, National Instruments has been a Test & Automation company, but they have been expanding their capabilities to assist engineers in solving control and design problems. NI continues to expand the computing platforms that its development environments can target to include mobile, industrial, and embedded targets. NI also continues to expand its own hardware platforms for test, control and design.

Jeff, together with NI engineers, will be discussing and demonstrating NI's various development environments and will show some NI's hardware platforms, including FPGA-based PLCs, PC-based RF instruments, USB-based data acquisition plus others. Some of these platforms help engineers do rapid prototyping, hence decreasing time to market. Other platforms might make sense embedded into OEM products, helping to lower development costs.

### About the Speaker

Jeff Steele has worked for National Instruments for over 17 years. He is currently the local Area Sales Manager; he has had various other positions at NI before this. Prior to working for NI, he was employed by Gould Electronics and Westinghouse Electric. He graduated from Clarkson University in 1984 with a

BSEE degree.

### About the Consultants' Network

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

### All Welcome!

Everyone welcome. No registration needed. Free admission.

**Time:** 7:30 PM, Thursday, September 28, 2006.

**Place:** Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. (Entrance at rear of building).

**Information:** For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org). To download a map to KDI, go to: <http://www.mcekdi-integrated.com/directions.htm>.

*NJ VTS Chapter:*

## Evolution Data Only (EVDO) Rev. A

On September 21, 2006, the IEEE North Jersey Section Vehicular Technology Society Chapter will host a talk on "Evolution-Data Only Rev. A." The speaker will be Dr. Raafat Kamel of Lucent Technologies.

### About the Talk

EVDO is a wireless technology optimized for data transmission. The initial release is designated as Rev 0, and has been successfully deployed commercially for over 4 years.

Rev A is an enhancement that provides

several improvements including: higher reverse link bandwidth, enhanced Quality of Service (QoS) and the ability to support delay sensitive applications like Voice over IP (VOIP). Rev A is completely backward compatible with the earlier release.

The talk will present an overview of Rev 0 and will highlight the differences between Rev 0 and Rev A with special emphasis on the physical and Medium Access Control (MAC) layers.

### About the Speaker

Raafat Kamel is a Distinguished Member of the Technical Staff at Lucent Technologies. He received his BS from the University of Khartoum, Sudan, in 1989 and MS and PhD degrees from New Jersey Institute of Technology in 1990 and 1994. All degrees are in Electrical Engineering. Since 1995 Dr. Kamel has worked for AT&T Network Wireless Systems and then Lucent Technologies in the CDMA Radio Technology Performance Analysis Group. He has worked on 2G, 3G1X, 1xEVDO systems in the areas of RF power control, call processing, and performance analysis.

### All Welcome!

Free admission. You do not have to be a member of IEEE to attend.

**Time:** 7:00 PM, Thursday, September 21, 2006. Free buffet will be served starting at 6:15 PM.

**Place:** Lucent Technologies, 67 Whippany Rd, Whippany, NJ.

**Information:** Stephen Wilkowski, Lucent Technologies, (973) 386-6487, swilkowski "AT" lucent.com, Arthur Greenberg, (973) 386-6673, ahg1 "AT" lucent.com.

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### NEWSLETTER STAFF

Editor ..... Keith Saracinello  
Business Manager..... Keith Saracinello  
k.saracinello "AT" ieee.org (908) 791-4067

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### IEEE NJ SECTION HOME PAGE

<http://web.njit.edu/~ieeenj/>

### IEEE NJ SECTION NEWSLETTER HOME PAGE

<http://web.njit.edu/~ieeenj/NEWSLETTER.html>

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### SECTION OFFICERS

Chair ..... Har Dayal  
har.dayal "AT" baesystems.com (973) 633-4618  
Vice-Chair-1..... Bhanu Chivukula  
b.chivukula "AT" computer.org (732) 718-3818  
Vice-Chair-2..... Kirit Dixit  
kdixit "AT" ieee.org (201) 669-7599  
Treasurer ..... Dr. Sanghoon Shin  
s.shin "AT" ieee.org (973) 492-1207 Ext. 22  
Secretary ..... Seth Jakel  
sgjakel "AT" comcast.net (973) 731-1902

### Members-at-Large:

Pete Donegan (doneganp "AT" ieee.org)  
Amit Patel (a.j.patel "AT" ieee.org)

*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 Seth Jakel at (973) 731 1902, [sgjakel "AT" comcast.net](mailto:sgjakel@comcast.net).*

### NJ PES/IAS Chapters:

## Energy Conservation Series - Power Factor Correction

On September 20, 2006, as part of an ongoing series of free seminars on the topic of energy conservation, the PES and IAS Chapters will sponsor an evening discussion on energy savings associated with power factor correction by Ronald W. Quade, PE.

### About the Meeting

The seminar will provide the basics of power factor correction:

- What is Power Factor?
- Should I Be Concerned About Low Power Factor?
- What Can I Do to Improve Power Factor?
- How Much Can I Save by Installing Power Capacitors?
- How Can I Select the Right Capacitors for My Specific Application Needs?
- How Much kVAR Do I Need?
- Where Should I Install Capacitors in My Plant Distribution System?
- Can Capacitors Be Used in Non-Linear, Non-Sinusoidal Environments?
- What About Maintenance?

### About the Speaker

Ron Quade, PE, is an Industrial and Utility Sales Manager for Eaton Electrical, a manufacturer of electrical equipment. He has a BS in Electrical Engineering from Rutgers University and an MS in Power Engineering from New Jersey Institute of Technology. He is also a registered professional engineer in the State of NJ. His prior experience includes Power Quality Engineer with Jersey Central Power and Light and consulting engineering with Burns & Roe Industrial Services Company.

**Time:** 6:30 PM, Wednesday, September 20, 2006. A pre-meeting buffet will be available starting at 6:00PM.

**Place:** Eaton Electrical (Cutler-Hammer), 690 Rahway Ave, Union, NJ. Directions: Route 82 Morris Avenue from either Springfield or Union to Rahway Ave.

**Information:** Ronald W. Quade, PE, (732) 205-2614 or [rwquade "AT" ieee.org](mailto:rwquade@ieee.org).

### NJ Section GOLD:

## North Jersey GOLD Sponsors Xilinx ISE Design and FPGA Implementation Workshop

The North Jersey Section GOLD (Graduates of the Last Decade) Committee in conjunction with the FDU IEEE Student Branch Teaneck, NJ, will be co-sponsoring a technical workshop on Xilinx ISE design and FPGA implementation.

The workshop provides an excellent opportunity to all students preparing to enter into the workforce or those graduates already working to gain some new skills to propel forward in their current jobs or help prepare for changing and upgrading their current career track.

The purpose of the workshop is to teach participants how to use Xilinx FPGAs and the ISE development kit to implement digital logic and designs. This is a critical skill in the fast-changing world of semi-conductors and just-in-time manufacture of new embedded devices.

Each participant will also receive a 30-page workbook with instructions and labs to take home with them as a future technical reference. Due to using lab equipment, seats are very limited and reservations will be made on a first-registered basis. There is also free and discounted seating reserved for FDU students and IEEE members. All the details of registration and costs can be found on the North Jersey GOLD website [http://ewh.ieee.org/r1/north\\_jersey/gold](http://ewh.ieee.org/r1/north_jersey/gold) or feel free to email the organizer at [northjerseygold "AT" ieee.org](mailto:northjerseygold@ieee.org).

**Time:** 10:30 AM – 4:00 PM, Saturday, September 30, 2006. Free lunch will be provided to all participants during the workshop.

**Place:** Muscurell Building, Rm 207, Fairleigh Dickinson University, Teaneck, NJ. Free parking is available outside the building

**Information:** See [http://ewh.ieee.org/r1/north\\_jersey/gold](http://ewh.ieee.org/r1/north_jersey/gold) or email Amit Patel at [northjerseygold "AT" ieee.org](mailto:northjerseygold@ieee.org).

# IEEE North Jersey Section Activities

## September 2006

**Sep. 6** – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Seth Jakel at [sgjakel “AT” comcast.net](mailto:sgjakel@comcast.net).

**Sep. 13** – “Partitioning QoS Management for Secure Tactical Wireless Ad-hoc Networks” by Dr. George F. Elmasry, NJ SP Chapter, 4:45PM (pizza at 4:30 PM), New Jersey Institute of Technology (NJIT), Weston Lecture Hall 1, Newark, NJ. Dr. Yun Shi (973) 596-3501 ([shi “AT” njit.edu](mailto:shi@njit.edu)), Dr. Alfredo Tan (201) 692-2347 ([tan “AT” mailbox.fdu.edu](mailto:tan@fdx.edu)), Dr. Hong Man (201) 216-5038 ([hman “AT” stevens-tech.edu](mailto:hman@stevens-tech.edu)).

**Sep. 13** – “Engineers Meet: Getting Started in Consulting” by Jim Boyd and Robert Walker, NJ PACE & GOLD, 6:30 – 9:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Paul Ward, (973) 790-1625 ([PWard1130 “AT” aol.com](mailto:PWard1130@aol.com)) or Richard F. Tax, (201) 664-6954 ([rtax “AT” verizon.net](mailto:rtax@verizon.net)).

**Sep. 16-Dec. 2** – “C# .NET Programming” by Dr. Donald Hsu, North Jersey Section, Saturday Mornings, 10 sessions, 9:00 AM-12:00 PM, Avtech, 130 Clinton Road, Second Floor, Fairfield, NJ. Donald Hsu ([yanyou “AT” hotmail.com](mailto:yanyou@hotmail.com)).

**Sep. 20** – “Energy Conservation Series - Power Factor Correction” by Ron Quade, PE, NJ IAS/PES Chapters, 6:30 PM, Eaton Electrical (Cutler-Hammer), 690 Rahway Ave, Union, NJ. Ronald W. Quade, PE, (732) 205-2614 or [rwquade “AT” ieee.org](mailto:rwquade@ieee.org)

**Sep. 20** – “Wireless Sensor Networks” by Dr. Martin Haenggi, NJ EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 ([dmsira “AT” njit.edu](mailto:dmsira@njit.edu)).

**Sep. 21** – “Evolution Data Only (EVDO) Rev. A” – by Dr. Raafat Kamel, NJ VTS Chapter, 7:00 PM (dinner at 6:15 PM), Lucent Technologies, 67 Whippany Rd, Whippany, NJ. Stephen Wilkowski, Lucent Technologies, (973) 386-6487, [swilkowski “AT” lucent.com](mailto:swilkowski@lucent.com), Arthur Greenberg, (973) 386-6673, [ahg1 “AT” lucent.com](mailto:ahg1@lucent.com).

**Sep. 28** – “National Instruments – “that GPIB Company”” by Jeff Steele, NJ Consultants' Network, 7:30 PM, Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. Robert Walker (973) 728-0344 or [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).

**Sep. 30** – “Xilinx ISE Design and FPGA Implementation Workshop”, NJ GOLD, 10:30 AM – 4:00 PM, Muscarell Building, Rm 207, Fairleigh Dickinson University, Teaneck, NJ. See [http://ewh.ieee.org/r1/north\\_jersey/gold](http://ewh.ieee.org/r1/north_jersey/gold) or email Amit Patel at [northjerseygold “AT” ieee.org](mailto:northjerseygold@ieee.org).

### Upcoming Meetings

**Oct. 4** – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Seth Jakel at [sgjakel “AT” comcast.net](mailto:sgjakel@comcast.net).

**Oct. 5** – “2006 MTT/AP Symposium and Mini-Show” – MTT-S/AP-S Chapter, 9:30 AM - 4:30 PM, Birchwood Manor, 111 N. Jefferson Road, Whippany, NJ. Kirit Dixit (201) 669-7599 ([kdixit “AT” ieee.org](mailto:kdixit@ieee.org)), Art Greenberg (973) 386-6673 ([ahg1 “AT” lucent.com](mailto:ahg1@lucent.com)), Har Dayal (973) 633-4618 ([har.dayal “AT” baesystems.com](mailto:har.dayal@baesystems.com)), or George Kannell (973) 386-4170 ([gkk “AT” lucent.com](mailto:gkk@lucent.com)).

**Oct. 17** – “Chip-Package Co-Design of RF Microsystems” by Professor P.R. Mukund, NJ EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 ([dmsira “AT” njit.edu](mailto:dmsira@njit.edu)).

**Oct. 17-Dec. 5** – “Project Management” by Dr. Donald Hsu, North Jersey Section, Tuesday Evenings, 8 sessions, 6:30-9:00 PM, NJ International Bulk Mail Center, 80 County Rd, Jersey City, NJ. Donald Hsu ([yanyou “AT” hotmail.com](mailto:yanyou@hotmail.com)).

**Oct. 26** – “All You Wanted to Know About Reliability Engineering!” by Dan Kamdar, NJ Consultants' Network, 7:30 PM, Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. Robert Walker (973) 728-0344 or [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).

**Oct. 27** – “National Electrical Code Seminar” by Won Kim, NJ PES/IAS, 9:00 AM - 12:45 PM, Jersey Central Power & Light Company, 300 Madison Avenue, Morristown, NJ 07962. Ronald W. Quade (732) 205-2614 or [RWQuade “AT” IEEE.org](mailto:RWQuade@IEEE.org).

**Nov. 2** – “Life Grade Luncheon” - 11:30 AM, Hamilton Park Conference Center, 175 Park Ave, Florham Park, NJ. Ken Oexle (973) 386-1156.

**Nov. 8** – “Theory and Applications of SEM/FIB DualBeam Instrumentation” by Dr. Lucille A. Giannuzzi, EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 ([dmsira “AT” njit.edu](mailto:dmsira@njit.edu)).

**Dec. 18-21** – “9<sup>th</sup> International Conference on Information Technology (CIT 2006)”, see <http://www.citconference.org> and <http://www.cs.unt.edu/~smohanty/CIT2006>.

**Members and Non-Members Welcome**

**PLEASE POST**

NJ SP Chapter:

## Partitioning QoS Management for Secure Tactical Wireless Ad-hoc Networks

On September 13, 2006, the IEEE North Jersey Section Signal Processing Society along with NJIT will host a seminar on "Partitioning QoS Management for Secure Tactical Wireless Ad-hoc Networks." The speaker will be Dr. George F. Elmasry.

### About the Talk

Addressing Quality of Service (QoS) in military wireless ad-hoc communication networks involves unique challenges due to imposed tactical requirements and conditions, such as heterogeneous traffic with stringent real-time and survivability requirements, mobile wireless nodes in hostile environments, and limited spectrum availability. Encryption adds another layer of complexity because the partitioning of the network into plain text (unencrypted) and cipher text (encrypted) parts that, by definition, cannot communicate QoS information to one another. A typical communication shelter consists of a number of unencrypted LANs connected to a packet-encrypted backbone network. This talk presents a partitioned QoS approach focusing on QoS management at the unencrypted LANs that complements QoS management done at the encrypted backbone. Some of the outlined QoS techniques for unencrypted LANs were used for Warfighter Information Network-Tactical (the future army tactical backbone network).

### About the Speaker

George F. Elmasry received his BSc degree in Electrical Engineering from Alexandria University, Egypt, and his MS and PhD degrees in Electrical Engineering from NJIT. He currently heads the Networking and Communications Division at DSCI with a focus on the Future Combat System (FCS) tactical networks for the US Army. The FCS is composed of multiple mobile ad-hoc networks with hierarchical architecture. Before joining DSCI, he worked for General Dynamics C4S in the Warfighter Information Network-Tactical (WIN-T) group where he spearheaded research in the areas of resource management and capacity analysis for WIN-T which is the tactical core network for the US Army. Prior to General Dynamics, he worked for Lucent Technologies in the Wireless Networks Wideband CDMA group. His research interests include the areas of wireless networking, ARQ, joint source and

channel coding, and multidimensional interleaving. He holds over 35 publications and patents in these fields. He is also actively involved with technology conference organization and paper reviews.

**Time:** 4:45 PM (refreshments and pizza available at 4:30 PM), Wednesday, September 13, 2006.

**Place:** New Jersey Institute of Technology (NJIT), Weston Lecture Hall 1, Newark, NJ. Directions are available at <http://www.njit.edu/University/Directions.html>.

**Information:** Dr. Yun Shi (973) 596-3501 (shi "AT" njit.edu), Dr. Alfredo Tan (201) 692-2347 (tan "AT" mailbox.fdu.edu), Dr. Hong Man (201) 216-5038 (hman "AT" stevens-tech.edu).

NJ EDS/C&S Chapters:

## Wireless Sensor Networks

On September 20, 2006, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Wireless Sensor Networks: A New Paradigm for Ubiquitous Sensing and Information Processing." The speaker will be Dr. Martin Haenggi.

### About the Talk

Due to the advances in wireless communications and electronics in recent years, the development of networks of low-cost, low-power, and multifunctional sensors has received increasing attention. These sensors gather and process data, and communicate with each other over a wireless channel. Various hardware platforms have already been designed to test the many ideas spawned by the research community and to implement applications in many fields of science and technology. This presentation gives a general introduction to sensor networks. We will discuss their properties, emphasizing the differences to other types of wireless networks, including WLANs and ad hoc networks. An overview of existing hardware solutions for sensor networks will be given, and we will conclude by discussing future directions and developments.

### About the Speaker

Martin Haenggi received the Dipl. Ing. (MSc) degree in electrical engineering from the Swiss Federal Institute of Technology (ETH) in 1995. In 1995, he joined the Signal and Information Processing Laboratory at ETH as a Teaching and Research Assistant. Between 1996 and 1998, he continued his studies and earned the Dipl. NDS ETH (post-diploma) degree in information

technology. In 1999, he completed his PhD thesis on the analysis, design, and optimization of cellular neural networks. After a postdoctoral year at the Electronics Research Laboratory at the University of California in Berkeley, he joined the faculty of the electrical engineering department at the University of Notre Dame as an assistant professor in January 2001. He is a senior member of the IEEE, a professional member of the ACM and the ASEE (American Society for Engineering Education), and a reviewer for numerous international journals and conferences. Recently he joined the Editorial Board of the Elsevier Journal of Ad Hoc Networks. For both his MSc and his PhD theses, he was awarded the ETH medal, and he received an NSF CAREER award in 2005. His scientific interests include networking, wireless communications, and dynamical systems, with an emphasis on ad hoc and sensor networks. His publications include 3 book chapters, 21 journal publications, and 36 conference papers.

### All Welcome!

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

**Time:** 7:00 PM, Wednesday, September 20, 2006. Free buffet will be starting at 6:15 PM.

**Place:** New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at <http://www.njit.edu>.

**Information:** Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

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*NJ Section PACE, GOLD:*

## **ENGINEERS MEET:**

### **Getting Started in Consulting**

On Wednesday, September 13, 2006 the North Jersey Section Professional Activities Committee and Graduates of the Last Decade will meet to discuss Getting Started In Consulting."

#### **About the Meeting**

Due to downsizing and budget cuts, an increased number of companies consider using consultants to fulfill their needs, while at the same time many engineers look at independent contracting as an alternative career path. The discussion will explore the motivations of prospective consultants, the risks that they face, the logistics and organization of a consulting business, marketing, and contracts.

#### **About the Speaker**

Our guest speakers will be two long-term member consultants of the IEEE Consultants Network of Northern NJ ([www.TechnologyOnTap.org](http://www.TechnologyOnTap.org)) will offer their thoughts on operating a consulting business and share their personal experiences.

Jim Boyd of XL Research, Inc. has designed micro controller-based products for consumer and industrial applications since 1978. His designs include arcade games, cordless telephones, experimental solar homes, high-speed printing machinery, fire alarm systems, a control system for a U.S. prison, and DMX-512 based theatrical lighting. Jim was consulting editor of Electronic Design magazine from 1995-2001.

Robert Walker of RD Walker Engineering has offered analog and digital design services since 1987. Robert's expertise includes sensing, conditioning, control and telecommunication equipment, utilizing discrete design as well as embedded controllers and FPGA's. For further information about the speakers, join us for Q & A.

#### **All Welcome**

Members and students from other professional societies and engineering disciplines are always welcome. We now include members from IEEE, ASME and AEA. For more information about these groups see:

[www.aea.org](http://www.aea.org)  
[www.ieeeusa.org](http://www.ieeeusa.org)  
<http://web.njit.edu/~ieeenj/>  
[www.asme.org/sections/northjersey](http://www.asme.org/sections/northjersey)

**Time:** 6:30 to 9:00 PM, Wednesday, September 13, 2006. Refreshments will be served.

**Place:** Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.

**Information:** Paul Ward, (973) 790-1625

(PWard1130 "AT" aol.com) or Richard F. Tax, (201) 664-0803 (rftax "AT" verizon.net).

## **IEEE Mentoring Connection Invitation - Call for Mentors**

The IEEE has developed an online program to foster mentoring relationships between younger IEEE members and those with more experience. We would like to offer you the opportunity to participate as a mentor in this program.

As a mentor, you will be able to draw from your professional life experiences to help guide a younger professional in their career planning and professional development. The online program enables the mentee to select their mentoring partner from among those who have volunteered to serve as mentors. After you have been identified as potential match, you will be contacted and asked to begin establishing a relationship.

IEEE has partnered with The Training Connection, a vendor that has developed a web-based mentoring program to facilitate the matching process. Participation in the program is voluntary and open to all IEEE members above the grade of Student Member. If you are interested in being a mentor, please go to <http://www.ieee.org/mentoring> for information on the roles and responsibilities of each mentoring partner including additional program information and an FAQ page. We also ask that you review the time and effort commitment to the program necessary to ensure a successful mentoring partnership. Access to the actual mentoring site is available via the IEEE Membership Benefits page at <http://www.ieee.org/web/membership/benefits/index.html>.

We encourage you to take advantage of the IEEE network of technical professionals and sign up for the online mentoring program today. If you have any questions, please contact Cathy Downer, IEEE Mentoring Connection Coordinator at <mailto:c.downer@ieee.org>

*NJ Consultants' Network:*

## **All You Wanted to Know About Reliability Engineering!**

On Thursday, October 26, 2006, the IEEE Consultants' Network of Northern NJ is pleased to present "All You Wanted to Know About Reliability Engineering!", by Dan Kamdar.

#### **About the Talk**

CNNNJ is pleased to present a technical presentation about reliability & maintainability engineering, systems safety, and logistics. The Discussion will describe various terms, such as MTBF & MTTR, Parts Stress Analysis, screening to enhance MTBF, Failure Modes Effect and Criticality Analysis (FMECA), software reliability, associated standards, HALT/HASS accelerated testing for earlier identification of failures, three levels of maintenance concept, BIT analysis and demonstration, safety risks and mitigations, Hazard Analysis, and logistics supportability and management. Software tools for performing these analyses will also be described.

#### **About the Speaker**

Dan Kamdar is the President and CEO of Affordable Engineering Services, LLC, a one-stop multi-disciplined engineering company. He has received MBA, MSEE, BSEE and BSME degrees. His company provides consulting services in reliability, maintainability, test, circuit design/analysis, quality assurance, logistics and component engineering. He has extensive background in aerospace and defense systems, such as fighter and transport aircrafts, rockets, missiles, space station and helicopters.

Dan can be reached at (973) 890-8915 or by email at [dkamdar@affordservices.com](mailto:dkamdar@affordservices.com); Affordable Engineering Services' web site is <http://www.affordservices.com>.

#### **About the Consultants' Network**

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

#### **All Welcome!**

Everyone welcome. No registration needed. Free admission.

**Time:** 7:30 PM, Thur., Oct. 26, 2006.

**Place:** Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. (Entrance at rear of building).

**Information:** For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org). To download a map to KDI, go to: <http://www.mckedi-integrated.com/directions.htm>.

*NJ EDS/C&S Chapters:*  
**Chip-Package Co-  
Design of RF  
Microsystems**

On October 17, 2006, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Chip-Package Co-Design of RF Microsystems." The speaker will be Professor P.R. Mukund.

**About the Talk**

The design of systems that contain both RF circuitry and digital circuitry, either in a single integrated circuit or a single package, poses challenges that are difficult to overcome with traditional design tools. For an efficient design methodology, it is imperative that an early design component be incorporated into the design cycle. Further, the chip and the package have to be designed concurrently. In this talk, a chip package co-design methodology and a resultant software tool will be presented. This research was sponsored by the National Science Foundation and the Semiconductor Corporation. In addition, related topics of built-in self test and self calibration of RF I.C.s will also be discussed.

**About the Speaker**

Professor P.R. Mukund is the Director of the RF, Analog and Mixed-signal Laboratory (RAMLAB) at R.I.T. In this capacity, he is the principal investigator of five research projects, sponsored by both industry and government agencies. He is currently supervising the research of five PhD students, whose work is based on close interaction with companies such as LSI Logic, Freescale Semiconductors, National Semiconductors and Kawasaki LSI. Dr. Mukund has a BSEE, MS and PhD degrees in electrical engineering from the University of Tennessee and has seven years of industrial experience, in addition to seventeen years of academic experience. He has co-edited IEEE Computer, chaired several IEEE international conferences and is currently on the Steering Committee of the IEEE International SoC Conference. He has published in the area of analog and RF integrated circuit design, in refereed forums.

**All Welcome!**

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

**Time:** 7:00 PM, Tuesday, October 17, 2006. Free buffet will be starting at 6:15 PM.

**Place:** New Jersey Institute of Technology (NJIT), Room 202, ECE

Center, Newark, NJ. Directions are available at <http://www.njit.edu>.

**Information:** Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

*NJ EDS/C&S Chapters:*

**Theory and  
Applications of  
SEM/FIB DualBeam  
Instrumentation**

On November 8, 2006, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Theory and Applications of SEM/FIB DualBeam Instrumentation." The speaker will be Dr. Lucille A. Giannuzzi.

**About the Talk**

The basic concepts of ion-solid interactions and focused ion beam (FIB) instrumentation and theory will be presented. Examples of basic FIB milling and the uses of gases for chemical vapor deposition and gas enhanced etching will be given. The first uses of FIB in the semiconductor industry for device modification and circuit repair have extending into many applications, materials research, and industrial markets. The applications of FIB and DualBeam usage on multiple material systems in numerous industries have been realized, and examples of FIB milling for many material systems will be shown. Uses of the DualBeam platform for nanotechnology applications will be described, showing that the utilization of such a tool is limited only by one's imagination. FIB milling techniques for specimen preparation for scanning electron microscopy (SEM), transmission electron microscopy (TEM), and other analytical tools will be presented. In particular, the ex-situ lift-out and in-situ lift-out TEM techniques will be presented in detail, and the applications of these specimen preparation methods for many TEM and Scanning TEM techniques will be emphasized. The concepts and advantages of a dual platform FIB and scanning electron microscope (SEM) will be discussed. In particular, the development of the combined FIB/SEM DualBeam instrumentation as a nano-lab and a 3D characterization tool which including microstructure, elemental composition, and crystallographic information will be given. Examples of using the DualBeam as a 30 keV

scanning transmission electron microscope will also be presented.

**About the Speaker**

Lucille A. Giannuzzi received her BE and MS Degrees from SUNY Stony Brook, and her PhD Degree from The Pennsylvania State University. She spent ten years at the University of Central Florida where she was the recipient of an NSF Career Award. As Professor of Mechanical Materials & Aerospace Engineering, her primary research interests included ion/solid interactions and the microstructural evaluation of materials using focused ion beams and transmission electron microscopy. She has been with FEI Company as a field product marketing engineer for FIB/DualBeam systems for the past three years. She is on the editorial board of the journal, Microscopy and Microanalysis and participates as an instructor in the Lehigh Microscopy School. She is active in the local and national chapters of AVS, MSA and MAS. She has been a local affiliate speaker for both MSA and the MAS and is co-editor of a book entitled, "Introduction to Focused Ion Beams."

**All Welcome!**

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

**Time:** 7:00 PM, Wednesday, November 8, 2006. Free buffet will be starting at 6:15 PM.

**Place:** New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at <http://www.njit.edu>.

**Information:** Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

**Interested in Being a  
North Jersey Section  
Officer?**

The North Jersey Section Nominating Committee will soon begin to consider candidates for section officers for next year. We request that those who are interested in a section office submit their name, office sought, and qualifications to the Committee Chair, Dr. Fred Chichester, by mail at

56 Gordonhurst Ave  
Upper Montclair, NJ 07043

For further information, you may telephone him at (973) 744-7340 between the hours of 8:00 AM and 9:00 PM.

## 2006-2007 Student Activities Kickoff

Welcome back to the beginning of a new year of student activities for the North Jersey Section. This year promises to be filled with new activities and events. We hope you and your student branches will be participating in all of these events throughout the 2006-2007 academic year. Also, since the year is just getting started, it is a good time for a refresher on what your branch must be doing to be recognized by the IEEE. Information about IEEE, student branch bylaws and forms to fill out is available on the website given below.

Also, I would like to announce that Amit Patel is passing the baton as Student Activities Chair to me. My name is Russell Pepe. You can reach me at the following e-mail address: northjerseysac "AT" ieee.org. I met several of you last year at the Spring 2006 Presentation Contest at NJIT and at the Student Leadership Workshop at Stevens Institute of Technology. I look forward to working with all of you during the upcoming school year.

To start off with, if you have not had elections yet, it would be a good idea to hold them and report to IEEE with the officer election form. Also, coming up is a leadership workshop that new (or potentially new) officers can attend to get essential training on running a branch. Your branch should fill out an annual plan of events in the fall and an annual report in the spring. Part of the reporting is on membership, which qualifies the branch for per member rebates. It's free money for turning in the right forms by the right time. Speaking of money, your branch should also plan fundraisers for basic expenses. If you really want to get started right, host one of these leadership workshops to learn the basics. Contact the organizer below. So what's happening this year? Lots of things! Details of the event's exact location, date, time, directions, and registration will become available on the SAC website below. Free Student Leadership Training Workshops in and Professional Skills Development Workshop in the fall. Instead of just holding single workshops, multiple individual workshops will be held at each university who wishes to receive formal training at their local branch for this and upcoming year's students. This holds true for both the leadership and professional skills training. If you would like to host these events then contact the organizer below. The annual Paper Presentation Contest is also planned for mid February/early March. This is a chance for students to showcase their hard work on different projects worked on during the year. It is open to both graduate and undergraduate students.

The MTT/AP (Microwaves and Antennas) Society of North Jersey will be holding its annual MTT Minishow on October 5, 2006 at the Birchwood Manor in Whippany, NJ. The Minishow is always looking for student volunteers to help out for the daylong conference. If you are interested, please contact Kirit Dixit at kdixit "AT" ieee "DOT" org.

Last, but not least, the SAC and GOLD committees are looking for volunteers who might be graduating soon and would like to help out in the North Jersey Section. To find out how you can help, contact northjerseysac "AT" ieee "DOT" org and visit the new website at [http://ewh.ieee.org/r1/north\\_jersey/sac](http://ewh.ieee.org/r1/north_jersey/sac). You will find the latest information updated there or you can also join the mailing list to get regular reminders of different events.

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### So long Good Soldier and Fellow Antenna Engineer John (Ned) Hines (Lifetime Member, IEEE)



Anyone attending the annual Robert Allerton Park Antenna Symposia over the years remembers Ned Hines, a faithful regular since its inception. Ned had so enjoyed the learning experience and camaraderie that he financed his own travel to Monticello, Illinois after retirement.

I first met Ned in 1996 when I joined Bell Labs-Lucent Wireless Research Labs where we worked together on next generation high efficiency intelligent antenna systems. What impressed me most about him was his positive spirit and gentle attitude under the most challenging set of circumstances. I never heard him say a bad word about anyone.

One must put his life into perspective to fully appreciate this. Ned was born in China in 1920, the son of a textile merchant. He joined the US Army Signal Corps and served in the Pacific Theater, including the Philippines during WW II. After the war he went to Ohio State University for his EE degree after which he worked in OSU R&D labs developing new antenna technologies, and was married and had several children. In 1956, he was offered a position at Bell Labs in Whippany, NJ and moved to Morristown. There he worked on versions of the Nike missile system, and ultimately the famous Telstar satellite antenna.

He relished weekly after work socializing over a 'G&T'. Ned continued to work as a consultant at Bell Labs until 2000. At home in his workshop, he kept busy making handmade jewelry for family and friends, to the particular delight of my daughter Natalie.

A kind soul and good friend to all who knew him, Ned passed away on June 19, 2006. He is survived by his wife Mary and lots of children, grandchildren and great grandchildren. We salute Ned Hines, a gentle giant of a man who did good to all he touched.

Gary Hojell  
Senior Member, IEEE  
Gary\_Hojell "AT" Raytheon.com

# IEEE North Jersey Section Course C# .NET Programming

*Saturday Mornings, September 16, 2006 through December 2, 2006*  
*Ten weekly classes (September 16, 30, October 7, 14, 21, 28, November 4, 11, 18, December 2, 2006)*  
*Place: Avtech, 130 Clinton Road, Fairfield, NJ*  
*(Checks should not be mailed to this address)*

## IEEE North Jersey Section thanks Avtech for sponsoring this “hands-on” course at its site

The IEEE North Jersey Section is offering a course entitled "C# .NET Programming". Since 2002, C# .NET has generated significant headway in Fortune 1000 enterprise development systems. Dice.com lists 650+ C# .NET jobs in the New York tri-state area daily! This course will cover the fundamentals of C# language, the .NET framework, window and web-based applications, ADO.NET, ASP.NET, and XML. It will be useful for anyone to develop applications based upon these tools.

You will receive the IEEE Certificate of Completion when you finish the course. Microsoft Corp. has MCAD and MCSD certifications. You may wish to get certified by taking the necessary Microsoft exams with the knowledge gained from this course.

Instructor: Donald Hsu, Ph.D., has been a corporate manager for 11 years and is an experienced trainer. Since 2001, he has trained 350+ people in C++, Java, WebLogic, XML, C# .NET courses in 7 organizations.

### TOPICS

1. Compare the enterprise development tools using C++, Java to C# .NET	6. Explain the benefit of using extensible markup language (XML)
2. Define Visual Studio .NET Version 2002 through Version 2005	7. Select database, SQL server, and ADO .NET
3. Identify C# syntax, data type, control structures and common language runtime	8. Choose ASP .NET, web forms, web controls, and web services
4. Distinguish methods, arrays, object-oriented programming	9. Operate the network, streams-based socket and mobile toolkits
5. Build graphical user interface, multithreading, files and streams	10. Search and sort, data structures, generics and collections
	11. Present student Projects

Class size will be limited to a maximum of 16 with a minimum of 9. Early registration is recommended. Registration accepted after September 3, 2006 will impose a late fee of \$25. No registration will be accepted after September 9, 2006.

**WHERE:** Avtech Fairfield Campus, 130 Clinton Rd, 2nd Floor, Room B, Fairfield, NJ 07004, (973) 882-8996  
 (Checks **should not** be mailed to this address)  
**WHEN:** 10 Saturdays, September 16, 30, October 7, 14, 21, 28, November 4, 11, 18, December 2, 2006, 9:00 AM to 12 noon  
**COST:** IEEE (& affiliate) members \$475; Non-IEEE members \$550.  
**CONTACT:** Donald Hsu, yanyou "AT" hotmail.com

### REGISTRATION: C# .NET Programming

Please mail the completed registration form with the check (**payable to “North Jersey Section IEEE”**) to: **Donald Hsu, Co-Chair, Education Committee, IEEE North Jersey Section, P.O. Box 2093, Fort Lee, New Jersey 07024**

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**

As soon as a fully completed registration form and the payment are received, you are officially registered for this course. Registration status will be mailed after September 9, 2006.

Tuition receipt will be mailed only if this box is checked

I wish to receive IEEE Completion Certificate

Signature: \_\_\_\_\_



# IEEE North Jersey Section Course Project Management

*Tuesday Evenings, October 17, 2006 through December 5, 2006*  
*Eight weekly classes (October 17, 24, 31, November 7, 14, 21, 28, December 5, 2006)*  
*Place: USPS, NJ International Bulk Mail Center, 80 County Road, Jersey City, NJ 07097*  
*(Checks should not be mailed to this address)*

## IEEE North Jersey Section appreciates USPS, BMC for sponsoring these courses at their premises

The North Jersey Section IEEE is offering an evening course entitled "Project Management". Dice.com lists 3800+ Project related jobs in the New York tri-state area daily! This course will help you to break down a master project into manageable tasks, pinpoint possible solutions, and provide information to keep the project under control. Using Microsoft Project 2003 software, you will learn to accomplish various project plans. In addition, it will greatly enhance your business, communications and interpersonal skills.

You will receive the IEEE certificate of completion when you finish the course. You may wish to take two Certification exams, one in Project Management administered by Project Management Institute and the other in IT Project+ by CompTIA Inc from the knowledge you learned in this course. (This is not an exclusive PMP-PMI examination prep course. No PDUs are issued for PMP eligibility. CEU credits would be given by IEEE)

Instructor: **Donald Hsu, PhD**, has been a corporate manager for 11 years and is an experienced trainer. Since 1999, he has trained 400+ people in IT Project+, MS Project 2003, and Project Management courses in eight organizations.

### TOPICS

1. Explain the need for a project manager
2. Define SOW, PERT, GANTT, CPM, and Scope of the project
3. Identify the team members, resources and plan for the strategy
4. Calculate schedule, budget variances, and monitor project progress
5. Manage changes, estimates, and communications
6. Set a baseline, import tasks from MS Excel, export Project files to MS Word
7. Create and modify custom reports, templates and combination views
8. Share resources and create a master plan loaded to Project Server
9. Approve updates and conclude a project plan
10. Analyze global E-Commerce and present student Projects

Class size will be limited to a maximum of 20 with a minimum of 10. Early registration is recommended. Registration accepted after October 5, 2006 will require a late fee of \$25. No reservations will be accepted after October 10, 2006.

**WHERE:** NJ International Bulk Mail Center, Jersey City, NJ. (Checks **should not** be mailed to this address)

**WHEN:** 8 Tuesdays, October 17, 24, 31, November 7, 14, 21, 28, December 5, 2006, 6:30-9:00 PM.

**COST:** IEEE (& affiliate) members \$400; Non-IEEE members \$480.

**CONTACT:** Donald Hsu: yanyou "AT" hotmail.com

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### REGISTRATION: Project Management

Please mail the registration form with the check (**Checks payable to "North Jersey Section IEEE"**) to **Donald Hsu, Co-Chair, Education Committee, IEEE North Jersey Section, PO Box 2093, Fort Lee, NJ 07024.**

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**

As soon as a completed registration form and the payment are received, you are officially registered for this course. Registration status will be emailed after October 10, 2006.

I wish to receive the IEEE Completion Certificate

Tuition receipt will be issued only if this box is checked

Signature: \_\_\_\_\_

# NJ Power Engineering Society/Industry Applications Society

## National Electric Code Seminar

The PES and IAS Chapters will sponsor a one-day seminar providing an overview and discussion of recent changes incorporated in the 2005 National Electrical Code (NEC). The session will be held on Friday, October 27<sup>th</sup>, from 9:00 AM – 12:45 PM, in the Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave, Morristown, NJ. The instructor will be Won Kim, PE. Participants are encouraged to bring their NEC book to the seminar. It can be ordered at [www.NFPACatalog.org](http://www.NFPACatalog.org) (request the current NEC 2005 edition).

### About the Seminar

The National Electrical Code is revised every three years by National Fire Protection Association as NFPA 70, and is adopted by most of the States as the State's Electrical Code. The purpose of the Code is the practical safeguarding of persons and property from hazards arising from the use of electricity. The seminar will cover the major changes in the code, and the topics will include the following:

- ✓ Relationship to Uniform Construction Code of New Jersey and Electrical Safety Code(NESC) published by IEEE.
- ✓ Enforcement of the Code by the Department of Community Affairs (DCA) and the municipalities.
- ✓ Relationship between electrical engineers/designers, electrical contractors and electrical inspectors.
- ✓ Wiring methods, materials and protection.
- ✓ Equipment for general use.
- ✓ Special occupancies and conditions
- ✓ Communications Systems

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The registration fee for this seminar will be \$100 (non-members), \$75 (IEEE members), \$50 IEEE GOLD (Graduates of the Last Decade) Members, \$25 Student Members and the fee will be waived for Life Members. All Registrations after October 12 must include an additional late fee of \$25. IEEE Continuing Education Units will be available at the seminar for an additional charge.

**Time:** 9:00 AM – 12:45 PM, Friday, October 27, 2006.  
**Place:** Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave, Morristown, NJ.  
**Directions:** Route 287 to Route 124 (Madison Ave exit). Head toward Madison. Jersey Central building is on the left about 1.5 miles from the exit.  
**Information:** Ken Oexle, (973) 386-1156

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### Registration: National Electric Code Seminar 10/27/2006

Register via US mail to: Kenneth Oexle  
11 Deerfield Rd  
Whippany, NJ 07981

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

IEEE # \_\_\_\_\_ Student @ \_\_\_\_\_ Non IEEE \_\_\_\_\_ Life Member \_\_\_\_\_

Continuing Education Units: \_\_\_\_\_ Yes \_\_\_\_\_ No

Payment Enclosed \$ \_\_\_\_\_ Add \$25 late registration after October 12, 2006

**Make checks payable to North Jersey Section IEEE**

# Life Grade Luncheon

The PES Chapter and the Section will sponsor a luncheon for North Jersey IEEE Life Grades (Members, Senior Members and Fellows) on Thursday, November 2, at the Hamilton Park Conference Center, 175 Park Avenue, Florham Park, NJ 07932. The luncheon will begin at 11:30 AM in the Terrace area. Cost is \$5.00 per person.

Advance registration is required prior to October 24. We can accommodate only 30 people. Registrations will be processed in the order of receipt and will be confirmed by return mail. Please complete the following registration form and include a check Payable to the North Jersey Section IEEE in the amount of \$5.00 per person.

Reservations cannot be accepted at the door. For additional information contact Ken Oexle 973-386-1156.

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IEEE Life Grade Luncheon Registration NJ - Nov 2, 2006

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

IEEE # \_\_\_\_\_ Life Grade \_\_\_\_ Yes

Return to: Ken Oexle  
11 Deerfield Rd  
Whippany, NJ 07981

Prior to October 24 and enclose \$5.00 Check payable to **NJ Section IEEE**

THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, INC.



**IEEE NORTH JERSEY SECTION**  
MTT-Society and AP-Society Joint Chapter



PRESENT

21<sup>st</sup> ANNUAL SYMPOSIUM AND MINI-SHOW



**FOCUS: SELECTED TOPICS IN RF AND MICROWAVE COMMUNICATION**

**Thursday, October 5, 2006**  
**Birchwood Manor**  
**111 N. Jefferson Road, Whippany, NJ (973) 887-1414**

**SCHEDULE OF EVENTS**

**9:30 AM TO 4:30 PM**

**TECHNICAL SESSIONS**

**10 –12 LECTURES FEATURING SPEAKERS FROM LEADING COMPANIES WITH EMPHASIS ON MILITARY ELECTRONICS, WIRELESS TECHNOLOGIES AND MICROWAVE COMMUNICATIONS.**

**MINI SHOW FEATURING LATEST PRODUCTS**  
**(Approximately 30-40 Exhibitors)**

**COMPLIMENTARY LUNCH SERVED**

Details of the schedule, speakers and topics can also be found at the IEEE North Jersey Section Newsletter webpage:

<http://web.njit.edu/~ieeenj/NEWSLETTER.html>

For further information contact

Chair/Exhibition:	Kirit Dixit	(201) 669-7599	kdixit "AT" ieee.org
Publicity:	Arthur Greenberg	(973) 386-6673	ahg1 "AT" lucent.com
Event/Location Coordinator:	Ken Oexle	(973) 386-1156	
Section Chair/Coordinator:	Har Dayal	(973) 633-4618	har.dayal "AT" baesystems.com
Technical Program Chair:	George Kannell	(973) 386-4170	gkk "AT" lucent.com

**THERE IS NO CHARGE TO ATTEND THE SYMPOSIUM OR SHOW**