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C A L E N D A R O F E V E N T S

For reservations call the IEEE office at 236-4609
(unless otherwise indicated)

COPY DEADLINE: FIRST WEEK OF MONTH PRIOR TO PUBN.

APR.	11	Tour - FAA Chgo. Vehicular Tech. Soc.	O'Hare Control Tower	Tour	6:30 PM
		O'Hare Operations	R E S E R V A T I O N S C L O S E D		
	12	Monthly Meeting IEEE Executive Cte.	McDonald's Rest.	Meeting	7:30 PM
			2111 Midwest Rd.		
			Oak Brook		
	13	Student Night Indus. Appls./IES	To be determined		
	13	"Bridge Controls, Power Engrng. Soc.	Carson Pirie Scott	Social	11:30 AM
		Chicago River"	Wabash & Monroe Sts.	Lunch	12:00 PM
			Highland Rm., 8th Fl.	Meeting	12:30 PM
	13-5/4	Seminar - BASIC Programming for Engineers	Northwest Sub. (Call Howard Myers, 815: 459-0100)	Holiday Inn	7:30 PM---9:30 PM
			Algonquin Rd.		
			Rolling Meadows	(See page 6)	
	16	Tutorial Seminar "Local Area Networks" & "X.25"	Communications Soc. (Call Dr. Narisa Chu, 979-3999)	Bell Labs. Auditor.	9:00 AM---3:00 PM
				Naperville/Wheaton Rd.	
			Naperville	(See page 5)	
	18	"Scan Independent Phased Arrays"	Antennas & Prop./Microwave Theory & Techniques Soc.	Louis Rest.	Social 5:30 PM
				351 E. Lake St.	Dinner 6:30 PM
			Addison	Meeting	7:30 PM
	18-20	American Power Conference	IEEE Power Engrg. Soc., IIT & 8 other Soc.	Palmer House	(Inf. R. Armington 567-3406)
			IIT & 8 other Soc.	State & Monroe, Chgo.	
	19	Workshop "Programmable Controllers"	Power Engrng. Soc.	Palmer House	(In conjunction w/American Power Conf.)
	23	MAC '83 Midwest Acoustics Conf.	Audio Engrng. Soc., Chgo. Acous. & Audio CRC of ASA & IEEE	Ill. Inst. of Tech.	9:00 AM---5:30 PM
				Hermann Hall, 3241 S. Federal St., Chicago	(Call Ted Staniec, 455-3600)
	23	Recognition Dnr.	IEEE Chicago Sec. (Call Joe Tanney, 696-2000)	The Lancer Rest.	Social 6:00 PM
				1450 E. Algonquin Rd.	Dinner 7:00 PM
				Schaumburg	Enter. 8:30 PM
	27	"Fuel Cell"	Fox Valley Sub.	Wilton Manor	Social 6:00 PM
				Geneva & Main Sts.	Dinner 7:00 PM
				Wheaton	Meeting 8:00 PM
	28	"Current & Future Trends in Program. Language"	Computer Soc. (Call John North, 260-4592)	Wilton Manor	Social 5:30 PM
				Geneva & Main Sts.	Dinner 6:30 PM
				Wheaton	Meeting 7:30 PM
MAY	7	Tour - Reynolds Metals Co.	Industry Appls./Indusl. Electncs. Soc.	4900 - 1st Ave.	Tour 9:00 AM
				Brookfield	
	10	Monthly Meeting ALL WELCOME	IEEE Executive Cte.	McDonald's Rest.	Meeting 7:30 PM
				2111 Midwest Rd.	
				Oak Brook	
	11	"Programmable Controllers for Power Plants"	Power Engrng. Soc.	Carson Pirie Scott	Social 11:30 AM
				Wabash & Monroe Sts.	Lunch 12:00 PM
				Highland Rm., 8th Fl.	Meeting 12:30 PM
	16	Panel Discussion "Millimeter Waves"	Antennas & Prop./Microwave Theory & Techniques Soc.	Louis Rest.	Social 5:30 PM
				351 E. Lake St.	Dinner 6:30 PM
				Addison	Meeting 7:30 PM
	18	"The Use of 2400 BPS Digital Speed Land Mobile Radio"	Communications Soc.	To be determined	
					Social 5:30 PM
					Dinner 6:30 PM
					Meeting 7:30 PM
	18	Tour Underwriters Labs.	Northwest Sub.	333 Pfingsten	Regis. 5:30 PM
				Northbrook	Tour 6:30 PM
	25	"Software Q.A."	Fox Valley Sub.	Wilton Manor	Social 5:30 PM
				Geneva & Main Sts.	Dinner 6:30 PM
				Wheaton	Meeting 7:30 PM

FOX VALLEY PRESENTING FUEL CELL SYSTEMS ON APRIL 27 - There is a national and international program underway to demonstrate the commercial viability of new type electric power plants called fuel cells.

Multimegawatt demonstration/prototype systems are being constructed in the United States and Japan. They are down-to-earth designs of the same system that presently provides on-board power for the space shuttles. These generators differ from present commercial units as they are based on electrochemical rather than electromagnetic principles. There are three major system concepts in the research and development phase for the near term and longer term, each of which will be discussed.

Speaker will be Dr. Jack T. Brown of Westinghouse Electric Corporation where he is Manager of the Materials and Advanced Conversion Systems Department. Dr. Brown has been in charge of research activities in fuel cells since 1968. His topic at the Fox Valley dinner meeting will be "Fuel Cell Systems - A New Generation of Electric Power Generators." See calendar for meeting location and time.

CALL JOE TANNEY NOW if you haven't made reservations for the Recognition Dinner on April 23. Members of the Chicago Section who have made outstanding contributions to the electrical and electronics engineering profession will be recognized that night. There is a sparkling evening of entertainment awaiting you as well as a scrumptious dinner at The Lancer Restaurant in Schaumburg. Call Joe Tanney today at 696-2000. Support your Chicago Section!

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DR. McLAUGHLIN TO SPEAK AT COMMUNICATIONS MEETING - On May 18, the Communications Society will host a dinner meeting where Dr. Michael McLaughlin will speak on "The Use of 2400 BPS Digital Speech for Land Mobile Radio."

Low data rate speech offers the potential of increased spectral efficiency through the use of narrower channel spacings as well as voice privacy for users. The talk will focus on the practical considerations that must be addressed for this technology to be used in a land mobile environment. They include the effects of: channel errors upon speech quality, spectral occupancy requirements and implementation consideration. The results of a field test that combine the use of speech coding at 2400 BPS with a nominal 6 KHz channel spacing radio will be presented. The results will also show a comparison with a present FM radio system requiring a 25 KHz channel spacing.

For further information, call Dr. McLaughlin at 576-4622.

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Change of Address
A change of address form is included in each issue of SPECTRUM. Your local post office will also supply you with cards; mail to Roseann Schulz, Member Services, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. Include your SPECTRUM mailing label if possible. We cannot forward this information for you, so please do not send it to the local office.
"POSTMASTER: send address changes to: Roseann Schulz, Member Services, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854."

Professional Activity
UPDATE

STATE OF ILLINOIS PROFESSIONAL ENGINEER REGISTRATION ACT - Due to so-called Sunset Laws in Illinois, the existing Professional Engineer Registration Act will expire in 1989. Efforts are now underway by the Illinois Society of Professional Engineers and the Illinois Engineering Council to participate in the rewriting of this legislation. The present law allows either a Registered Professional Engineer or a Registered Architect to stamp drawings for construction projects.

Suggestions have been made that the new law requires registration by discipline, such as is done in California. This would require the electrical drawings to be stamped by a registered E.E., the architectural drawings by a registered architect and so on for each area of the design involved.

Your comments on this suggestion and on other matters concerning registration are invited. Send them to: John Waters, PAC Chairman • c/o IEEE Office • 125 South Clark Street, Room 1545 • Chicago, Illinois 60603.

Annual Election

The IEEE Chicago Section Nominating Committee composed of Dennis Lamont, Chairman together with John Waters and Paul Geiger has selected the following slate of candidates for Section Officers and Executive Committee members for the 1983-84 term. Please mark your choices on the ballot below. If you wish to vote for another member, write the name in the space provided and check the box. VOTE! VOTE! VOTE! VOTE!

OFFICERS (Vote for four)

Chairman	Vice Chairman	Treasurer	Secretary
☐ William Everson Commonwealth Edison Co.	☐ George Thomas Contemporary Control Sys., Inc.	☐ Henry Korman Noble U.S.A.	☐ Norbert Orszula Brown & Root, Inc.
☐ _____ (write-in)			

EXECUTIVE COMMITTEE (Vote for eight)

☐ Frank Bellucia Motorola, Inc.	☐ Keith Klontz McHenry Electric & Supply Co.	☐ Douglas Smith Square D Co.	☐ George Stout GPE Controls
☐ Terence Sumner Motorola, Inc.	☐ John Tyner Cleworth Pubns.	☐ John Waters Bussmann Mfg. Div.	☐ Howard Wolfman Grayhill, Inc.
☐ _____ (write-in)			

Mail the ballot to: Dennis Lamont, Nominating Committee Chairman • IEEE Office • 125 South Clark Street, Room 1545 • Chicago, Illinois 60603. Ballots must be received no later than April 15, 1983. Results will be announced in the May issue of Scanfax.

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Dr. Fred C. Lee
Virginia Polytechnic Institute
and State University

This new short course offers to both the novice and experienced power electronics engineer the opportunity to explore in depth the state-of-the-art in practical DC-to-DC power converter design. It has been sequenced and organized to give maximum exposure to the three most important topics of this essential power processing art, namely — circuits, magnetics and control. Each of the three segments of the course is conducted by a recognized expert in the major topic addressed, and the learning experiences of each segment are further reinforced by valuable reference books and materials personally selected by the instructor for ease of use by the students in solving everyday on-the-job problems.

For a minimal cost-effective investment of time and capital, this extraordinary course provides each attendee unique occasions to learn and apply the latest design methods and concepts behind selection of circuits, controls, and magnetic components for DC-to-DC power processing. The steady attainable pace the course maintains in its orderly three-step sequence and the careful attention to practical examples of principles and methods presented will be appreciated by all participants.

WHEN AND WHERE IN 1983

April 11-15	Los Angeles, CA
May 16-20	Atlanta, GA
June 13-17	Chicago, IL
July 11-15	Boston, MA
August 15-19	Denver, CO
September 12-16	San Jose, CA

For more information and a free brochure detailing the overall course and hotel locations, simply call our office or fill out the information request below and mail as soon as possible. Enrollment in an individual segment of the course is permitted and course fee discounts are available for company group attendance. Make your registration early as enrollment will be limited!

☐ Send more information about the course and its reference books.

NAME _____

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DR. MUNK TO SPEAK AT ANTENNAS & PROPAGATION MEETING — Although various forms of phased arrays have been built, a number of fundamental concepts remain to be understood and developed. Among these is the scan impedance which varies greatly with scan angle in what was believed to be "nature's way." In fact, "proofs" to this effect have been readily presented in the general literature. It will be shown that it is possible and even practical to place a scan compensating device between the elements and free space such that a reduction of the impedance variation is obtained. It will also be shown that, by proper design, a VSWR less than 1.6 for scan angles varying $\pm 80^\circ$ in any plane is possible. (Without scan compensation a VSWR of approximately 5 would result.) Finally, some interesting results from a recent investigation concerning the finiteness of phased arrays will be given.

Dr. Benedikt A. Munk will speak on "Scan Independent Phased Arrays" at the Antennas & Propagation/Microwave Theory & Techniques Society dinner meeting April 18. Dr. Munk was responsible for the development and design of commercial and special antennas. When he joined Andrew Corporation in Chicago in 1961 he was responsible for the hard and soft antennas for the guidance of the Titan II missiles. He was later associated with Rockwell in Columbus (Ohio) as a Senior Research Engineer where he studied phase errors in circular apertures. Dr. Munk is now a Professor in the Department of Electrical Engineering and a Supervisor in the Electro Science Lab, Ohio State University. He holds several patents in the area of metallic radomes and phased arrays.

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COMMUNICATIONS SOCIETY

Chicago Chapter

presents a

Tutorial Seminar on

LOCAL AREA NETWORKS

&

X.25

Time: 9:00 — 3:00 Saturday, April 16, 1983

Location: Bell Laboratories Auditorium

SEMINAR CONTENT

1. LOCAL AREA NETWORKS

The increasing number of large computers, personal terminals and "smart" workstations in offices and factory environments has generated considerable interest in digital communication capability within organizational facilities. Many vendors now provide this capability based on widely varying definitions of Local Area Networks.

The need for LANs will be presented and LAN applications will be discussed. The major types of LANs will be described and evaluated. Internetworking issues will be explored. Performance tradeoffs for various media, access mechanisms, protocols and network interfaces will be addressed. Finally LAN components and some representative systems will be described.

2. X.25

The X.25 protocol, as defined by the International Telegraph and Telephone Consultative Committee (CCITT), has been accepted as a world wide standard for accessing packet switched networks. The protocol defines:

- the physical interface (level 1) between a DTE (computer or terminal) and a DCE (network processor),
- the link protocol, HDLC (level 2),
- a unique protocol (level 3) to maximize signal data link usage by a number of different users.

A full description of X.25 will be presented. Some current controversy as how X.25 can suit ISDN needs will be briefed.

THE INSTRUCTORS

Mr. William P. Lidinsky is the supervisor of the Wideband Systems Group at Bell Laboratories. He is currently chairman of the IEEE 802 Standards Subcommittee on HILL. He was the session chairman on "Local Area Data Networks" for the 1982 National Electronics Conference and is Program Chairman of the "8th Data Communications Symposium" to be held in Cape Cod, Massachusetts on Oct. 3-6, 1983.

Dr. Narisa N.Y. Chu is a Member of Technical Staff at Bell Laboratories. She has taught "Data Communications Networks" in Bell Labs continuing education program. She is involved in CCITT standards activities at work, in particular with respect to X.25 data link level protocol. She is also the current chairwoman of the Communications Society, Chicago section.

TWO-WEEK ADVANCE REGISTRATION REQUIRED

REGISTRATION FORM

Name _____ IEEE Member No. _____

Company _____ TEL. _____

Address _____

Fee: \$50 IEEE Members
\$70 Non-members

(Lunch is included. Map will be provided with registration confirmation.)

Make check payable to Chicago Communications Society,
Mail check with registration form to: Dr. Daryl Eigen,
Bell Laboratories, Naperville-Wheaton Road, Naperville, IL. 60566

The I.E.E.E. Northwest Subsection presents

BASIC Programming for Engineers

RESERVATION FORM (Reservations are Limited)

[] Please enter my reservation. I have included full payment of
[] \$95. for I.E.E.E. members. Membership # _____
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[] Please reserve a place. \$25 enclosed. Balance payable at door.

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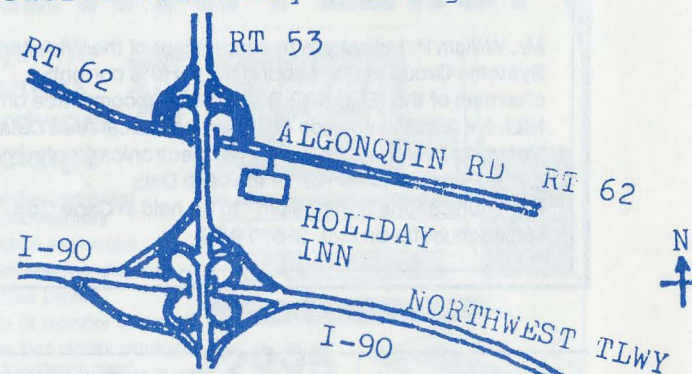
BASIC Programming for Engineers is a seminar to introduce the computer programming language BASIC to Engineers and other technical people. It is geared toward any engineer or group leader who is interested in automating some of the more mundane tasks of the profession. No prior experience with computers or programming is required.

When:

This seminar will be presented as a series of 4 two hour sessions from 7:30 p.m. to 9:30 p.m. on consecutive Wednesday evenings beginning with April 13, 1983.

Where:

All sessions will be held at the Rolling Meadows Holiday Inn which is located just East of the intersection of Route 53 and Route 62 (Algonquin Road). See map at Right.



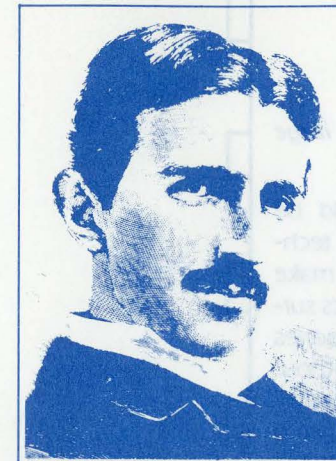
Fee:

The total fee for the 8 hour (4 sessions @ 2 hours) seminar is \$95. for I.E.E.E. members and \$115. for others. Fees include all course materials. This seminar proved to be very popular and well-rated by last year's attendees. Early pre-registration is recommended as the number of participants is limited.

For Further Information, Contact:

I.E.E.E. Office or
(312) 236-4609

Howard Wm. Myers
(815) 459-0100



Nikola Tesla (1856-1943)

ABCs of Power Electronics Three 1983 Courses

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ABOUT THE COURSES

Courses A and B, taught respectively by Dr. Middlebrook and Dr. Ćuk, are based on full-year courses at the California Institute of Technology. The courses are essential for analog circuit design engineers and supervisors, and especially for engineers working in the power electronics field. These two courses are offered by TESLAcO as a consecutive pair, running for five full days (2½ days each), but either may be taken separately. Course C is a more advanced four-day course for the switched-mode power supply designer and manager. Taught jointly by Dr. Middlebrook and Dr. Ćuk, the emphasis in this course is on state-of-the-art design and measurement.

COURSE A: Design-Oriented Circuit Analysis and Measurement Techniques

by Dr. R.D. Middlebrook

This course teaches analog and power electronics engineers how to obtain practical solutions to "real life" analysis and design problems through a unique *design-analyze-measure* sequence. The basic principles of feedback and stability are augmented by a powerful measurement technique which allows loop-gain measurement without breaking the feedback loop. Even unstable loops can be measured, so that the source of instability can be determined.

COURSE B: Basics of Power Electronics: Topologies, Magnetics and Control

by Dr. Slobodan Ćuk

This course offers a *comprehensive tutorial treatment* of Power Electronics and the three key areas of expertise: converter topologies, magnetic circuits and control of switching regulators. Dr. Ćuk has directly contributed to topologies (*Ćuk Converter*), Magnetics (*Integrated Magnetics and Coupled-Inductor Approach*), and Control (*State-Space Averaging Method*) and is uniquely qualified to bring these three key areas together into a thoroughly effective instructional technique.

COURSE C: Advances in Switched-Mode Power Conversion

by Dr. R.D. Middlebrook and Dr. Slobodan Ćuk

For experienced design engineers in the switched-mode power conversion field, or for those who have previously taken Courses A and B. The design-oriented analysis and measurement methods practiced in Course A are combined with the knowledge of converter types and magnetics properties covered in Course B to synthesize *extremely powerful yet easy-to-use techniques* for converter and regulator design; a small desk-top computer is used both to predict performance and to control a network analyzer that measures the actual performance.

OUTSTANDING AND UNIQUE FEATURES

Each course includes a complete set of notes, hardware demonstrations, and multicolored overhead projections. Virtually any switching converter configuration currently in use is demonstrated along with a number of designs from actual practice. Measurement of feedback loop gain by closed-loop injection is used to verify frequency response predictions. Computer programs to both analyze and measure frequency response of converters are also demonstrated. A special BH loop tester is used to display and explain magnetic phenomena.

Closed circuit TV allows easy viewing of the scope screen and instrument dials. Classrooms for all A and B courses are theatre style with raised seating.

Each attendee will receive a Certificate of Participation. Course B attendees will receive the two-volume book, *Advances in Switched-Mode Power Conversion* by Dr. Middlebrook and Dr. Ćuk in addition to the course notes.

1983 Courses A and B Schedule:

Los Angeles:	June 13-17
Chicago:	July 11-15
San Francisco:	August 1-5
Boston:	Aug. 29-Sept. 2

1983 Course C Schedule:

San Diego:	December 12-15
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For further information and a detailed brochure, return this form or call Janet Dauble at TESLAcO, (213) 795-1699.

- 1983 SEMINAR INFORMATION REQUEST -

Name _____

Title _____

Company/Division _____

Street Address _____

City _____ State _____ Zip _____

Telephone _____

☐ In addition, please send a brochure on the two-volume book by Dr. Middlebrook and Dr. Ćuk, *Advances in Switched-Mode Power Conversion*.

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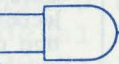
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