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CHICAGO SECTION • IEEE • INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS

MARCH 1976



CALENDAR OF EVENTS

For Reservations Call the IEEE Office at 236-4609 (Unless Otherwise Indicated)

- Mar. 2 IEEE Executive Committee Meeting; Brown & Root Offices, Spring Rd., Oak Brook, Ill., 7:30 PM — ALL WELCOME.
- 3 "A Few Notes on Synthesizers," Fox Valley Subsection (Joint Audio & Electroacoustics Group), Nordic Hills Country Club, Rt. 53 & Nordic Rd., Itasca, Ill., Dinner 7:00 PM; Meeting 8:00 PM.
- 4, 11, Microprocessor Systems Design Course offered by the Chicago Chapter of IEEE Computer Society, Chicago Section 18 & 25 of IEEE and Northwestern University. Course held at Northwestern University, Evanston, Ill.
- 10 "Problems, Progress and Plans of Communications and Microwave Sensors," Microwave Theory and Techniques Group/Antennas and Propagation Society, Allegretti's, West Higgins & North Mannheim Rds., Rosemont, Ill. (at O'Hare), Social Hour 6:00 PM; Dinner 7:00 PM; Meeting 8:00 PM.
- 10 "How to Specify a Supervisory Control System," Industrial Electronics and Control Instrumentation/Industry Application Group, Nielsen's, 7330 W. North Ave., Elmwood Park, Ill., Social Hour 5:30 PM; Dinner 6:15 PM; Meeting 7:15 PM. For reservations call Bob Loewe at 644-0828 between the hours of 8:00 AM and 4:00 PM.
- 15 Information Theory Group (No information by deadline).
- 17 Tour of Central Telephone Company, Northwest Subsection, 36 S. Fairview, Park Ridge, Ill. (Dinner location Holiday Inn, Touhy & Rt. 45, Des Plaines, Ill.), Social Hour 6:00 PM; Dinner 6:30 PM; Meeting 8:00 PM.
- 18 "Substation Automation," Power Engineering Society (Joint WSE, West Suburban), Richard's Lilac Lodge, 2135 S. Wolf, Hillside, Ill., Social Hour 6:00 PM; Dinner 6:30 PM; Meeting 7:30 PM.
- 20 Information Theory Group (No information by deadline).
- Apr. 6 IEEE Executive Committee Meeting; Brown & Root Offices, Spring Rd., Oak Brook, Ill., 7:30 PM — ALL WELCOME.
- 7 "Transients in Electric Power Systems — Digital and Analog Simulation — State of the Art," Fox Valley Subsection (Joint Power Engineering Society), LeGrand Chalet, 2200 N. Main, Wheaton, Ill., Dinner 7:00 PM; Meeting 8:00 PM.
- 14 "Nickel Cadmium Storage Batteries and Chargers for Industrial Applications," Industrial Electronics and Control Instrumentation/Industry Application Group, Nielsen's, 7330 W. North Ave., Elmwood Park, Ill., Social Hour 5:30 PM; Dinner 6:15 PM; Meeting 7:15 PM.
- 14 Vehicular Technology Group (No information by deadline).
- 17 Tour of Commonwealth Edison Company's 765 kV Plano Substation, Fox Valley Subsection, Plano, Ill.
- 23 "Ladies Night — Dinner in Sears Tower," Program: "Alaska Communications," Microwave Theory and Techniques Group/Antennas and Propagation Society, Sears Tower — Franklin Inn, Cocktails 6:00 PM; Dinner 7:00 PM; Meeting 8:00 PM.
- May 15 IEEE Recognition Dinner, O'Hare Inn, Chicago, Ill.

Deadline for copy: First week of month preceding publication

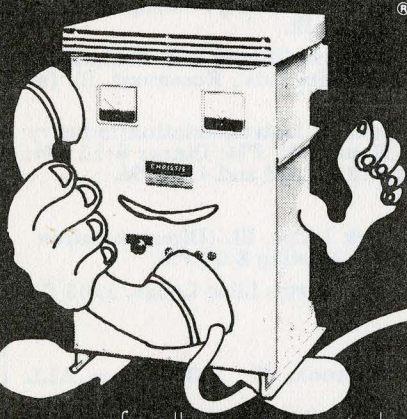
NOMINATING COMMITTEE SELECTS SLATE

The Chicago Section IEEE Nominating Committee, James Ralston, Chairman, has selected a slate of Officers and Executive Committee Members for the 1976-1977 fiscal year. Any IEEE member who wishes to place anyone else's name in nomination may do so by presenting the Nominating Committee with a petition bearing 10 members' signatures. All such petitions must be received by James Ralston at Allen-Bradley Company, 838 S. Desplaines St., Chicago, Ill. 60607 by April 1, 1975.

Candidates slated by the Nominating Committee for Section Officers are: *Chairman*, Paul E. Jahn, Commonwealth Edison Company; *Vice-Chairman*, Robert A. Waghorne, Teletype Corporation; *Treasurer*, John E. Waters, Bussmann Manufacturing Division; and *Secretary*, Charles Hatstat, Sargent & Lundy.

Candidates for the Executive Committee are: George W. Austin, Mike Barnes, Paul N. Geiger, Nils Larson, John Logeman, Ed Osterberg, and Howard L. Wolfman.

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VEHICULAR TECHNOLOGY GROUP ELECTS NEW OFFICERS

At the January 7, 1976 VTG Chapter meeting held at the Holiday Inn in Rolling Meadows, the following officers were elected for the 1976 calendar year: *Chairman*, Ken Cunningham, Illinois Bell Telephone Company, Chicago; *Vice Chairman*, Dan Clark, Motorola Corporation, Schaumburg; *Secretary-Treasurer*, John Zinkus, Federal Communications Commission, Park Ridge.

COMPUTER SOCIETY REQUESTING NOMINATIONS

The Chicago Section IEEE Computer Society requests nominations for Chairman, Vice Chairman, Secretary, and Treasurer. The elections are being changed to run from January 1 to December 31 of each year. Last day for submitting is March 19, 1976.

Send nominations to:
Dr. Bruce Briley
Bell Telephone Laboratories
Electronic Systems Division
Room 6 E 312
Naperville, Illinois 60540
Please include short resume of nominees.

A FEW NOTES ON SYNTHESIZERS

At the March 3rd Fox Valley Meeting at the Nordic Hills Country Club, A. F. Petrie and Robert G. Mathias of Hammond Organ Company will discuss the research and development of all types of synthesizer circuits — including the Hammond music synthesizers. They will demonstrate a Hammond organ equipped with a synthesizer console. Cocktail Hour is 6:30 P.M. — Dinner 7:00 P.M. — and the Meeting at 8:00 P.M.

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Meeting Reservations

Remember that the IEEE office, (312) 236-4609 will take your meeting reservations. Call anytime between 8:00 AM and 5:00 PM, Monday through Friday.

The meeting coordinator for any group should call and leave his number with the office, so they can refer questions on matters other than reservations.

Change of Address

If you have moved — or are about to move — please notify the IEEE office in NEW YORK. Our SCANFAX mailing labels come from there, and we cannot update your mailing address locally in Chicago.

A change of address form is included in each issue of SPECTRUM. Your local post office will also supply you with cards; mail to Emily Sirjane, Membership Services, IEEE, 345 E. 47th Street, New York, NY 10017. Include your SPECTRUM mailing label if possible. We cannot forward this information for you, so please do not send it to the local office.

JOSEPH T. BECKER SPEAKER AT IECI/IAS MEETING

"How to Specify a Supervisory Control System" will be presented by Joseph T. Becker of J. T. Becker Associates, Inc.

at the March 10 meeting of the Industrial Electronics and Control Instrumentation /Industry Application Group. The presen-



Standing from left are: James Ralston, Allen-Bradley Company; Manohar L. Arya, Warwick Electronics; Frank Voltaggio, Northrop Corporation; Bill Schuette, Probe Electronics; Tom Meyer, Allen-Bradley Company; Eric Rasmussen, Gorm & Company; Dave Schipul, Zenith Radio Corporation; Sitting starting from left are: Jack Mc Clurkin, Cutler-Hammer, Inc.; Bob Warzin, Allen-Bradley Company; Hank Korman, Shigma Inc.; Bob Keller, Quasar Electronics; Joe Puca, Quasar Electronics.

IEEE 1976 RECOGNITION DINNER

The 1976 Recognition Dinner will be held at the O'Hare Inn in Chicago to honor new fellow members of the IEEE Society on May 15, 1976.

The cost for the dinner will be \$15.00 per person which will include a prime of tenderloin Chateau-Briand style steak dinner with cocktails and hors d'oeuvres. The date will be May 15th at the O'Hare Inn, Mannheim & Higgins Road, Rose-

mont, Illinois. It will be held in their spacious ballroom where top flight entertainment will be presented. Cocktails are at 6 P.M. — Dinner at 7 P.M. Free parking will be available.

Tickets may be purchased from Joe Puca of Quasar Electronics, 9401 West Grand Avenue, Franklin Park, Illinois 60131, Telephone 451-1200. Cost is \$15.00 per ticket.

Saturday May 15's The Date

... for the 1976 IEEE Recognition Dinner at the O'Hare Inn Grand Ballroom. Past dinners have been a roaring success — don't miss this one. Send for your tickets Now! Meet your fellow IEEE members and their spouses for a great night out. Enjoy hor D'oeuvres, dinner, dancing, and entertainment.

Make your reservation now! Send a check (made payable to IEEE Chicago Section) to:

Joe Puca
Quasar Electronics
9401 West Grand Avenue
Franklin Park, Illinois 60131

From: _____
Name _____

Address _____

City _____ State _____ Zip _____

Number of Tickets _____

tation will be in three parts: 1) A brief history of systems from the early 1950's to the present; 2) Applications of supervisory systems; 3) How to write a good system specification.

The meeting will be held at Nielsen's Village, 7330 West North Avenue in Elmwood Park, Illinois. Social hour will begin at 5:30 PM, dinner 6:15 PM and the meeting will begin at 7:15 PM. All those who come for dinner will receive free liquid refreshments.

For reservations, call Bob Loewe at 644-0828 between the hours of 8:00 AM and 4:00 PM.

SOUND WAVES PRESSURING YOU?

"The Measurement of Sound Fields and Their Effect on People" is the subject for the Tenth Annual Midwest Acoustics Conference. The one-day meeting will provide comprehensive coverage of modern signal processing and data reduction technology for solving new technical and legal problems in acoustics. Speakers from government, industry, and universities will participate. The 1976 Conference will be held Saturday, May 1, 9 A.M. - 5 P.M. in the Norris Center of Northwestern University, Evanston, Illinois.

The program features speakers who will review the requirements for good acoustic measurements as well as today's equipment technology. Solutions to problems in the fields of noise control, community noise, architectural acoustics, sound reproduction, and musical instrument research will be discussed. The speakers will include David Pallett and Curtis Holmer, Nat'l Bur. of Stds.; George Maling, IBM; James Beauchamp, U. of Ill.; Howard Schechter, ITTRI; Fred Wightman, Northwestern Univ.; and R. L. Kirkegaard, BBN.

A number of manufacturers of acoustic instrumentation and audio equipment will exhibit their products.

MAC '76 is an annual Chicago Area Conference sponsored by the Audio Engineering Society, Institute of Electrical & Electronic Engineers, Chicago Regional Chapter of the Acoustical Society of America, and the Chicago Acoustical & Audio Group.

For further information about the conference or exhibits contact H. O. Saunders at Rm. 24A, 225 W. Randolph St., Chicago, Ill. 60606 or Telephone (312) 727-4331.

SUBSTATION AUTOMATION

At a joint March meeting of the Chicago Chapter of the Power Engineering Society and the West Suburban Chapter of the Western Society of Engineers, the program topic will be digital techniques in the substation.

Electronics, particularly digital electronics, is a pervasive influence in our daily lives. Computers, Quad Stereo, pocket calculators, and digital watches are vivid examples. Can this same technology be used in the electric utility substation? If it can, what will it do better or different than contemporary equipment?

Electronics is already in limited use in substations. It appears that there are ways to use more electronics to consolidate most of the instrumentation, control, and some protection into an integrated substation automation system. Pooling of information and function, implemented with digital techniques, will be economical and will provide new capability not available today. Mr. George P. Gurr of General Electric Company will discuss the topic.

Mr. Gurr is Project Manager of the General Electric Substation Automation Study Project. He is currently on the staff of the Power Systems Management Business Department. Mr. Gurr conceived the General Electric PROBE-I equipment organization and is now directing the PROBE-I model development and evaluation.

His professional career has been in the field of real-time control systems for industrial automation, aerospace command and control, and electric utility systems automation. During his career, Mr. Gurr has conceived and perfected specialized machinery for the manufacture of painting tools, developed optical targets for automatic tracking theodolites; and in 1963 engineered, produced, and installed a computer-directed Supervisory Control and Data Acquisition (SCADA) system. He has also conceived several techniques for high-speed orbiting vehicle telemetry data decommutation and processing subsequently implemented at Univac; guided the Pacific HVDC Intertie System Control to successful completion; and became the prime mover behind Substation Automation and Distribution System Automation efforts at General Electric.

This dinner meeting will be held on Thursday, March 18 at Richard's Lilac Lodge, 2135 S. Wolf Road, Hillside, Illinois. A social period will begin at 6:00

"THE NIXON TAPES ANALYSIS"

The topic of a presentation by Dr. Richard Bolt and Professor Mark Weiss will be "The Nixon Tapes Analysis." The presentation will be sponsored by the Chicago Regional Chapter of the Acoustical Society of America.

Non-technical aspects of the Analysis will be emphasized, supplemented by technical enlargement on key-issues and audio demonstrations of portions of the tapes.

Dr. Bolt is Chairman of the Board of Directors of Bolt, Beranek and Newman Inc. Professor Weiss is Professor of Computer Sciences at the City University of New York. He was formerly Vice President of Acoustics Research at Federal

Scientific Corporation. Both men served on the U. S. District Court Advisory Panel on Whitehouse Tapes. They first met in November of 1973 to outline their analysis program.

The date is Thursday — March 18 at O'Hare-American Inn located at Touhy and River Roads in Des Plaines, Illinois. Cocktails 6:00 P.M.; dinner 6:45 P.M.

Wives and friends are encouraged to attend — the presentation of this topic of historic importance should be of interest to all.

Since a large audience is expected, please make your reservations early by mailing your check along with the reservation form below.

"THE NIXON TAPES ANALYSIS"

Enclosed is my check for _____ dinner reservations at \$6.75 each. Total \$ _____.

Return to: NAME: _____

Mr. Jim Mitchell ADDRESS: _____
Huff Company

Box 296
Deerfield, Illinois 60015

Call 945-0040 to Confirm Reservations

PM, dinner will be served at 6:30 PM and the meeting program will begin at approximately 7:30 PM. A charge of \$6.00 will be collected from those who choose to purchase dinner and cocktails.

For reservations, please call 236-4609 by Monday, March 15.

NORTHWEST TO TOUR CENTRAL TELEPHONE COMPANY

The Northwest Subsection will conduct a tour of the Central Telephone Company located at 36 South Fairview in Park Ridge, Illinois at their March 17 meeting. Areas to be toured are the power room; toll service consoles; No. 5 Western Electric crossbar marker groups; Illinois Bell "T" carrier; electronic equipment associated with toll service position system; and directory assistance offices.

Dinner preceding the tour will be held at the Holiday Inn, Touhy & Route 45 in Des Plaines, Illinois. Social hour is 6:00 PM, dinner 6:30 PM and the meeting at 8:00 PM. IEEE, W.S.E. members and guests are invited.

For reservations, call the IEEE office at 236-4609.

ANNOUNCEMENT

For information regarding the part-time late afternoon graduate program in the Computer Sciences Department at Northwestern University, write to:

Computer Sciences Department
Northwestern University
Evanston, Illinois 60201
or call (312) 492-3641.

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OPTOELECTRONICS APPLICATIONS & PRINCIPLES

A course in Optoelectronics is to be offered by the Northwestern University, Technological Institute starting April 1 and running through May 27, 1976. It will be held on Thursday mornings 8:30 — 12:00 including luncheon at Evanston, Illinois. The Study is designed for engineers and applied scientists called upon to utilize optoelectronics as well as for application or development engineers who are involved or contemplate future involvement in optoelectronics.

This Study will provide the participants with an understanding of the basic concepts which underlie optoelectronic devices and their applications through lectures, discussions, and laboratory

demonstrations. The lectures first concentrate upon the basic principles of coherent and incoherent solid state sources, followed by an exposition of external and internal modulation techniques. The communication system then is viewed in its entirety by considering primarily the fiber optic system. Major emphasis at the receiver is upon the principles underlying bulk and junction detectors with specific reference to their natural limitations. The principal information transmission techniques in digital systems are examined. Finally, specific attention is directed toward various solid state displays.

Important to this presentation of optoelectronics are laboratory demonstra-

tions which will emphasize the application of the concepts presented in the lectures. Industrial representatives have been invited to present the current state of the art in devices and systems. Participants will be provided with lecture notes summarizing essential concepts and the development of basic material which will be fully referenced to enable them to expand further upon topics relating to specific design-development problems.

SPECIAL AFTERNOON SESSION will be devoted to laboratory demonstrations and a lecture tour of the Fiber Optic Facility and the Optical Diagnostics Laboratory. FOR APPLICATION, PLEASE COMPLETE FORM.

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Northwestern University
Evanston, Illinois 60201 • (312) 492-3365

CES 7631 Optoelectronics: Applications & Principles
April 1-May 27, 1976 Tuition: \$475

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Highest Degree _____

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SPACE COMMUNICATIONS

The work at NASA on satellite communications and earth-viewing remote microwave sensor applications that involve several antenna and propagation efforts will be discussed at the March 10 meeting of the Microwave Theory and Techniques Group/Antennas and Propagation Society.

The speaker will be Edward A. Wolff, Associate Chief, Communications and Navigation Division, NASA Goddard Space Flight Center in Maryland. Prior to joining GSFC, he had 15 years experience in industry on antenna, radar and instrument design and development. He is an author, co-editor and a Fellow of IEEE and the Washington Academy of Sciences.

The meeting will be held at Allegretti's located on West Higgins and North Mannheim Roads in Rosemont, Illinois. Social hour will be 6:00 PM, dinner at 7:00 PM and the meeting will begin at 8:00 PM. For reservations, call the IEEE office at 236-4609.

NATIONAL CONFERENCE IN OKLAHOMA CITY

The IEEE Control of Power Systems Conference and Exposition, March 10-12, 1976, in Oklahoma City, will be of prime interest to users, manufacturers, and utilities. Technical sessions include control of

production, transmission, distribution, and utilization systems. Write or call: Mr. Randolph Frost, 7824 N.W. 28 Terrace, Bethany, OK 73028. Ph. (405) 236-7339.

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COURSE ANNOUNCEMENT-MICROPROCESSOR SYSTEMS DESIGN

Offered By

Chicago Chapter of IEEE Computer Society,
Chicago Section of IEEE and Northwestern University

To Be Held At Northwestern University — Evanston, Illinois

4 Days — March 4, 11, 18, 25, 1976

This is intended to be a comprehensive course dealing with the design of systems incorporating a microcomputer. Application examples are taken from systems actually designed and built and will be discussed in detail. To allow individual interaction, registration will be limited. This course is a repeat of the very successful one offered last spring. Fee is \$250 and includes course lectures, materials, texts and luncheons.

Session 1: Fundamentals of Microcomputer Systems (morning)
Architecture of Typical Microprocessors (afternoon)

Session 1 will be introductory in nature. It is meant to explain, quickly, the operation of a computer, to define terms and to give alternatives for CPU design. The afternoon session will discuss the architecture and characteristics of the more popular microprocessors.

Session 2: Microprocessor Interface Techniques (morning)
Design Fundamentals (afternoon)

Session 2 will discuss fundamental notions of interfacing microcomputers to memory systems and to peripherals. Several different ways to handle input/output will be considered including programmed input/output and priority interrupt systems.

Session 3: Application Examples (morning)
Alternatives to Microprocessor Based Design (afternoon)

Session 3 will first consider in detail a complete application example including timing and coding. In addition, modern design alternatives to microcomputer systems and based on MSI/LSI circuits will be discussed.

Session 4: Design Support Facilities (morning)
Discussion of the Class Design Problem (afternoon)

Session 4 will discuss the facilities available to support design of microcomputer systems. Both hardware and software support will be included and the advantage of different approaches will be pointed out. Finally, the second complete application example will be discussed.

SPEAKERS:

Dr. B. W. Jordan, Jr., Associate Professor, Departments of Electrical Engineering and Computer Sciences, Northwestern University; specialist in digital system design and organizer of microcomputer courses.

Dr. W. J. Lennon, Assistant Professor, Department of Computer Sciences, Northwestern University; specialist in real-time computer systems and Director of Computer Sciences Research Laboratory.

Dr. F. M. Brasch, Assistant Professor, Departments of Electrical Engineering and Computer Sciences, Northwestern University; specialist in computer control and digital design.

Dr. M. J. Gonzalez, Assistant Professor, Department of Computer Sciences, Northwestern University; specialist in computer organization and distributed systems.

MICROPROCESSOR SYSTEMS DESIGN COURSE REGISTRATION FORM

Mail to: IEEE — Chicago Section
125 South Clark Street
Room 1545
Chicago, Illinois 60603

Name _____

Home Phone _____ Business Phone _____

Affiliation _____

Address _____

Registration deadline February 27

Make Check payable to: Microprocessor Course 76