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Official Publication of the Chicago Section • Institute of Electrical & Electronics Engineers • January 1987

TIME SENSITIVE MATERIAL

CALENDAR OF EVENTS

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

Copy Deadline for February Scanfax is Dec. 29, 1986

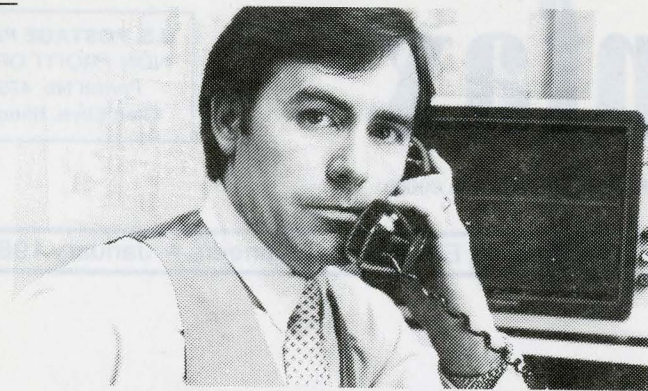
1987

HAPPY NEW YEAR!

1987

JAN. 7	"Programmable Controllers in the Utility Environ."	Power Engrng. Soc.	Carson Pirie Scott Wabash & Monroe Sts. Highland Rm., 8th Fl.	Social 11:30 AM Lunch 12 Noon Meeting 12:30 PM
7	"Neck Motor Programming"	Eng. in Medicine & Biology Soc.	Northwestern Univ. 303 E. Chicago, Chicago, IL	Meeting 7:30 PM
13	Monthly Meeting ALL WELCOME	IEEE Executive Cte.	Allen-Bradley Company 910 Pasquinelli Dr. Westmont, IL	Meeting 7:30 PM
14	"Smart Transmitters and Progress in Field Bus Tech."	Industry Appls. Soc./ Indus'l Elec'ncs Soc. (joint with ISA)	Randolph Market Cafe 1235 W. Randolph St. (between Racine & Ogden) Chicago, IL	Social 5:30 PM Dinner 6:30 PM Meeting 7:45 PM
17	"Fiber Optics Technology & Applications"	Northwest Subsection	Allen-Bradley Company 910 Pasquinelli Dr. Westmont, IL	10 AM - 1 PM
21	"FIR Filter Controller"	Communications Society	Wilton Manor 2200 Main St. Wheaton, IL	Social 6:00 PM Dinner 7:00 PM Meeting 8:00 PM
22	"EMC for Consumer Elect. Equipment"	EMC Society	AT&T-Bell Labs Naperville Rd. Naperville, IL	Meeting 7:30 PM
28	"Artificial Intelligence - Imaging"	Fox Valley Sub.	Wilton Manor 2200 Main St. Wheaton, IL	Social 6:00 PM Dinner 7:00 PM Meeting 8:00 PM

(continued on pg. 5)



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979-3627

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979-5824

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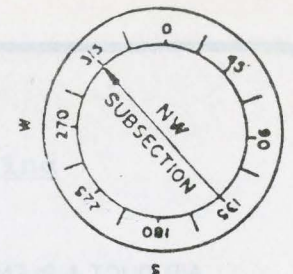
Change of Address

Send change of address to Roseann Schulz, Member Services, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854-4150. Include your SPECTRUM mailing label is possible. We cannot forward this information for you, so please do not send it to the local office.

Northwest Subsection



THE INSTITUTE OF
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Volume 17 - NO. 2

January 1987

FIBER OPTICS TECHNOLOGY AND APPLICATIONS

At the January meeting of the Northwest Subsection we will rerun the Video Conference on Fiber Optics. This will be a unique opportunity for those of you who are not able to attend the regularly scheduled video conferences. And the price is right! FREE - however, if you want a copy of the conference notes there will be a charge of \$10.00 to cover our cost of reproducing them.

Approximately one third of the program will be used to develop the necessary background in fiber optics technology (what it is and its capabilities/limitations), in order to understand how this technology is being applied today and how it might be applied to the future. The remainder of the program will address the applications in telecommunications, local area networking, and sensing systems. It is not limited to communications.

PROGRAM OUTLINE Technology

Fibers
Principles of Propagation
Glass and Fiber Making
Loss
Delay Distortion (Dispersion)
Cabling
Splicing and Connectorization
Sources and Transmitters
Lasers and LED's
Principles of Operations
Fabrication
Input-Output Characteristics
Transmitters
Drives for LED's and Lasers
Coupling Lasers and LED's to Fibers

Detectors and Receivers
PIN and APD Detectors
Receiver Design for Optical Detectors
Other Components
Applications
Point to Point Telecommunications Trunking
Local Area Networks
Broadband Networks (Bring Fibers to End Users)
Data Links
Analog Links
Sensing Systems
Advanced Applications
Integrated Optics
Photonic Switching

INTENDED AUDIENCE:

This videoconference is directed to working engineers, planners, and all others interested in understanding fiber optics technology and applications from the user's point of view.

KEY SEMINAR ELEMENTS:

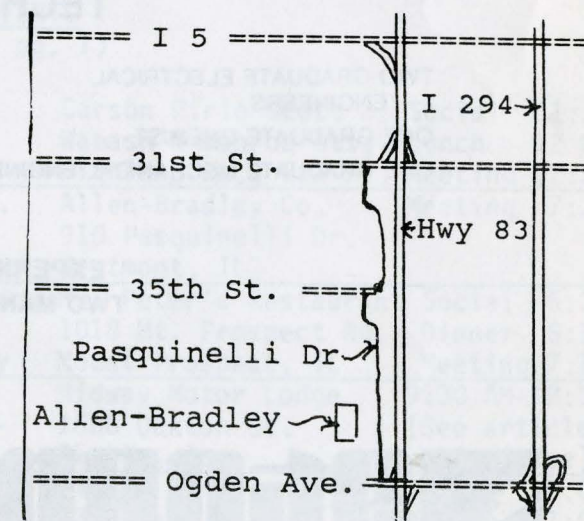
- Overview of the Basic Fiber Technology (Components)
- Current Applications
- Emerging Applications

Date: Saturday, January 17, 1987
Time: 10:00 am to 1:00 pm

Place: Allen-Bradley Company
910 Pasquinelli Drive
Westmont, Ill

Reservation are required and must be made on or before Wednesday January 14.

Reservations: Call Eleanore at Electrical Institute - (312) 236 4609
Indicate if you want a set of notes.



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ISSUE	COPY DUE	MAILED ON
FEB. 87	DEC. 29	JAN. 15
MAR.	JAN. 26	FEB. 14
APR.	FEB. 23	MAR. 16
MAY	MAR. 30	APR. 15
JUNE	APR. 27	MAY 15

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FOX VALLEY SUBSECTION

Artificial Intelligence in Image Processing

Wednesday, January 28, 1987

We are building faster computers with larger memories, better sensors for signal feed back, and communication networks for systems to talk to each other. Artificial Intelligence combines all these ingredients to manage and provide meaningful results. The mind boggling field of Artificial Intelligence is allowing users to explode the application and value of computers.

Tom Smith of Symbolics, Inc. will be the speaker. He will introduce us to Artificial Intelligence as a technology with emphasis on image processing. An example in medical imaging will demonstrate some future possibilities of AI.

Tom holds a BSE (ME) from the University of Michigan. He had over 15 years experience in engineer design and process control with GM and Modcomp prior to joining Symbolics.

Location: Wilton Manor
2200 Main St.
Wheaton, IL

Time: Cash Bar - 6:00 p.m.
Dinner - 7:00 p.m.
Cost \$10
Meeting - 8:00 p.m.

Dinner & Meeting Reservations

Please call (312) 236-4609 prior to Monday, January 26. If you cannot join us for dinner, please feel free to attend the meeting.

CALENDAR OF EVENTS (continued from pg. 1)

FEB. 4	"Appl. & Tech. Compari. of LV Circuit Breakers vs Insula. Case Brkrs."	Power Engrng. Soc.	Carson Pirie Scott Wabash & Monroe Sts. Highland Rm., 8th Fl.	Social 11:30AM Lunch 12 Noon Meeting 12:30PM
10	Monthly Meeting ALL WELCOME	IEEE Executive Cte.	Allen-Bradley Co. 910 Pasquinelli Dr. Westmont, IL	Meeting 7:30PM
11	"Factory Automation"	Industry Applications Society/Industrial Electronics Society	Mr. Peter's Restaurant 1018 Mt. Prospect Rd. Mount Prospect, IL	Social 5:30PM Dinner 6:15PM Meeting 7:15PM
21	"Management vs. Engrng.-Who is Responsible for Relia."	ASQC-IEEE Reliability Management Seminar	Midway Motor Lodge 1600 Oakton St. Skokie, IL	9:30 AM-12:30PM (See article in this issue)
25	"Computer Graphics"	Fox Valley Subsec.	Wilton Manor 2200 Main St. Wheaton, IL	Social 6:00PM Dinner 7:00PM Meeting 8:00PM

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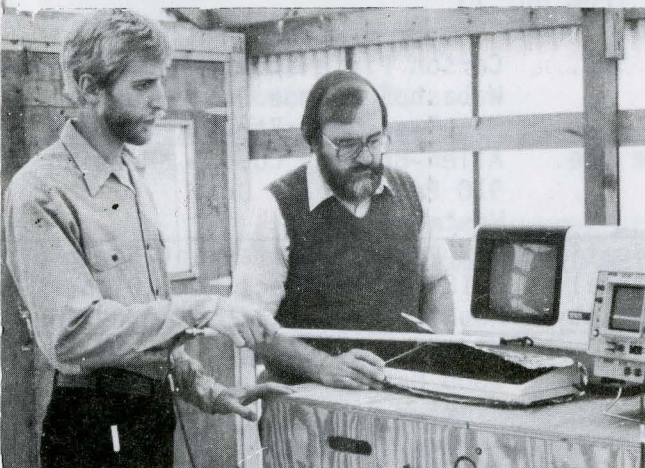
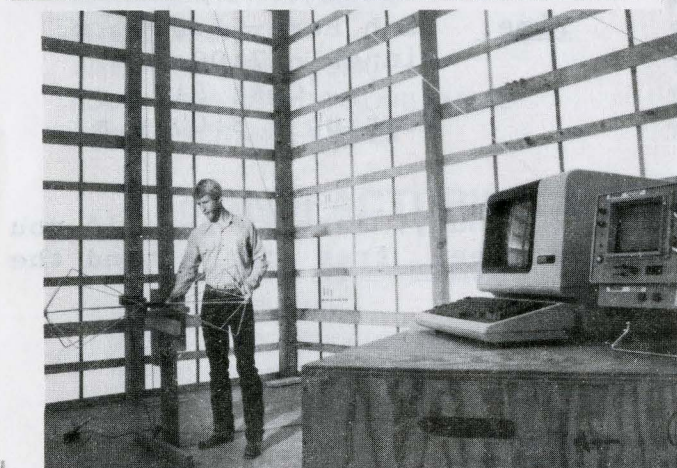
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Communications Society

Meeting Date - Jan. 21

Wilton Manor - Wheaton, IL

Social 6 PM

Dinner 7 PM

Meeting 8 PM

Speaker - Jeff Haight of Intersil

Subject - Finite Impulse Response (FIR)

Filter Controller

POWER ENGINEERING SOCIETY - Meeting Notice

WEDNESDAY - JANUARY 7, 1987

LUNCHEON MEETING

SPEAKER:

Mike Theodosopoulos
Sargent & Lundy Engineers

TOPIC:

Programmable Logic Controllers in the Utility Industry

ABSTRACT:

The Programmable Logic Controller (PLC), with a wide range of Input/Output (I/O) interface modules, has many sophisticated capabilities such as user friendly programming instructions, communications with other PLCs, choice of multiple peripheral devices and built-in diagnostics for maintenance.

ABOUT THE SPEAKER:

Mike E. Theodosopoulos received his BSEE Degree from the Illinois Institute of Technology, Chicago, Illinois in 1979. Since 1979, he has been employed with Sargent & Lundy Engineers in Chicago. Mr. Theodosopoulos is a co-author of "Lessons Learned in the Installation of a Large Programmable Logic Controller." Mr. Theodosopoulos is a member of IEEE Control Systems and is a Registered Professional Engineer in Illinois.

LOCATION:

Carson, Pirie, Scott & Co.
Highland Room
Monroe & Wabash
Downtown Chicago

Cocktails: 11:30 AM
Lunch: 12:00 Noon
Meeting: 1:00 PM

Lunch is \$11.00 per person. Advance reservations should be made by calling Eleanor Burda at 236-4609. For further information contact John Whelan at Kockner-Moeller at 593-0980.

IAS/IES SOCIETY

January 14, 1987

"Smart Field Instrumentation & Developing A Field Bus Standard"

Ed Bastijanac - Bailey Controls Company - Wickliffe, Ohio

Mr. Bastijanac will speak on Integrating Smart Instrumentation into Distributed Control Systems. In Addition Mr. Bastijanac will address the ongoing development of a Field Bus Standard.

5:30 PM Cash Bar

6:30 PM Dinner

7:45 PM Technical Program (All Welcome)

Reservations: Call the IEEE Office at 236-4609.

Randolph Market Cafe
1235 W. Randolph St. (between Racine & Ogden)
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Information: Erwin Plofsky 293-5565.

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Active Filter Design (EE 526)

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Computer Networks (EE 543)
Fault Tolerant Design of Microcomputer Based Systems (EE 547)

Distributed Processing Systems (EE 549)
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Energy

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DC Power Transmission (EE 559)

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Traveling Waves (EE 309)
Engineering Electronics (EE 311)
Electronics Circuits (EE 312)

Computers/Digital System

Digital Systems (EE 228)
Digital Computers & Computing (EE 242)

Digital Integrated Circuits (EE 427)
Logic Design & Implementation (EE 446)
Switching Circuit Theory (EE 483)
Software Engineering (EE 487)

Energy

Energy Conversion (EE 331)
Power Distribution (EE 424)

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Data Structures and Algorithms (CS 331)
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Programming Methodology (CS 387)
Computer Graphics (CS 411)
Data Base Organization (CS 425)
Programming Languages & Translators (CS 440)
Operating Systems I (CS 450)
Telecommunications Systems (CS 455)
Computer Architecture I (CS 470)
Computers & Society (CS 485)

Registration, Room 137: Friday, January 9, 4-7 PM
Saturday, January 10, 9:30 to Noon
Monday, January 12, 4-7 PM

For additional information and/or registration materials, call or visit the IIT West Office.

600 South Lambert Road □ College of DuPage—Building M □ Glen Ellyn, Illinois 60137
312/567-3900

UPDATE FROM YOUR SECTION TREASURER- JOE FEITLER

First of all we now own a Chicago Section Computer, an AT&T PC6300, with one Floppy drive, a 30Mb hard disk, and an Okidata 182 printer. We are in the process of converting our existing CP/M accounting system to MS-DOS. We bought a DAC-EASY Accounting package and some other software. We also received some "Public Domain" excellent utilities, with some limited UNIX (Trademark of AT&T) capabilities.

We are reviewing our 1987 budgets for the Section Chapters and Sub-sections. Therefore please submit your budget promptly if you have not done so. Our 1987 conference income will be much lower than in 1986, so we will be looking at the figures quite closely. Please remember that any Chapter without a budget form will be entitled to a "default allocation" of \$20 for 1987; any increase requires a budget form and subsequent Section approval.

In reviewing our IEEE Headquarters reports it became obvious that many meetings were not reported to our Section Secretary and, hence, not to New York. This makes our rebate smaller than it should be. So therefore please be sure to submit your outstanding meeting reports by year-end 1986 so that we can support you more adequately. Incidentally, any meeting within the calendar year after the fifth one is worth \$50 starting in 1987, instead of only \$35. Please include a meeting report for the Section Technical Meeting on September 23, 1986, if your Chapter/Subsection has not done so yet.

Please call me at 979-7762 if you need help with your budget or have any other questions on Section funding.

Joe

ILLINOIS INSTITUTE OF TECHNOLOGY
Chicago, Illinois

Director of the Western Suburban Campus, IIT/WEST

Illinois Institute of Technology invites applications and nominations for Director of IIT/West, a newly established satellite campus located in Chicago's western suburbs. The new campus will offer graduate and undergraduate programs in engineering, computer science and business administration for employed professionals, technology managers and other full and part-time students. IIT/West is located in Illinois' rapidly growing, high technology corridor approximately 18 miles west of downtown Chicago.

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PLACEMENT SERVICE

The Chicago Section is now offering a Placement Service for its members free of charge. The program is intended for those who are Member Grade and above and is a positive step to help our members who are unemployed. If interested in any of the applicants listed below, call the IEEE office (236-4609) for their name and phone number. If marked "confidential," the applicant will be contacted by the IEEE office so that he/she may contact the prospective employer.

- B42 — BSEE from UIC - automation and digital control, management exp.
- B43 — MSEE control systems/senior level.
- B44 — BSEET GPA 3.32 entry level position in software or field service engr.
- B45 — Sr. Project Engr. - factory automation, robotics, vision, AI, CAD/CAM, communica. software develop.
- B46 — Telecommunications Analyst - exp. in central office, PBX & key system development.
- B47 — Elect/Electronic Proj. Engr. - ECM microwave industrial cntrl. eqp. BSGN eng.
- B48 — Engineering Manager - electronics rel. qual. ESD - extensive component exp.

- B49 — BSEE - UIUC looking for entry level position in analog electronics.
- B50 — Bio-medical/clinical & instrument design - desire part time - instructor E.E.
- B51 — Plant engineer high voltage dist. electl. main. machine main. or multi-faceted plant support.
- B52 — Sr. electl. proj. engr. - nuclear & fossil power all aspects inc. I & C.
- B53 — Tel sys hdw/swf des exp. assem pascal fortran PLI, GTE sys's, sys tst, QA
- B54 — BSEE - looking for entry level electrical engineering position.
- B55 — B.S. Elec. - looking for field service engrng. position - I like to work.
- B56 — BSEET - GPA 3 - 90 (4.0) entry level position in field service or in house.

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EMC MINI-CON '87

February 17, 1987

Hilton Lisle/Naperville

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TITLE: _____ PRODUCT(s): _____
COMPANY: _____
ADDRESS: _____
CITY: _____ STATE: _____ ZIP: _____
PHONE: () _____ JOB FUNCTION: _____

TYPES OF EMC WORK DONE (Check all that apply):

FCC	☐ VDE	MIL-STD	☐ TEMPEST
☐ Part 15	☐ FDA/MDS	☐ 220	☐ EMP
☐ Part 18	☐ RTCA/DO160	☐ 285	☐ OTHER
☐ Part 68	☐ SAMA	☐ 461	
☐ Other	☐ ESD	☐ other	

FREE REGISTRATION *Or \$15 at door!

I READ REGULARLY

- | | |
|---|---|
| ☐ BYTE | ☐ EMC Technology |
| ☐ Compliance Design | ☐ I.T.E.M. |
| ☐ EDN | ☐ SCANFAX |
| ☐ EE Times | ☐ Signal |
| ☐ Evaluation Engineering | ☐ ENR |
| ☐ Test & Measurement World | ☐ MSN |
| ☐ Defense Electronics | |
| ☐ Other | |

I BUY/SPECIFY/RECOMMEND

- | | | |
|--|---|--|
| ☐ Power Filters | ☐ Shielding Aids | ☐ Ferrites |
| ☐ Filters | ☐ Cables/Conn. | ☐ Other related |
| ☐ Gasketing | ☐ Instruments | |
| ☐ Coatings | ☐ EMI Services | |

☐ I need ticket to attend luncheon SF1

Return completed form before Feb. 9, 1987

-ADV-

EMC Society

Date Jan. 22

Time - 7:30 PM

Topic - EMC for Consumer Electronic Equipment

Speaker - Ed Doubek - AT&T

Location - AT&T-Bell Labs - Main Building at
Corner of Naperville Rd. and Warrenville Rd.

Reservations - Bob Hofmann at 979-3627.

JANUARY MEETING OF THE CHICAGO CHAPTER ENGINEERING IN MEDICINE & BIOLOGY SOCIETY

The second meeting of the 1986/87 series of the Chicago Chapter of the Engineering in Medicine and Biology Society will be held on Wednesday January 7, 1986 at 7:30 PM. The speaker will be Dr. Barry Peterson, Assistant Professor of Physiology of the Northwestern University School of Medicine. Dr. Peterson has done pioneering work in the application of Tensor analysis to model neural control mechanisms. The title of Dr. Peterson's talk will be "An Examination of Neck Motor Programming in the Light of Current Theories of Sensory Motor Transformation by the Central Nervous System."

The meeting will be held in the main conference room of the Department of Physiology at Northwestern University's Chicago Campus. The address is Ward Building Room 5-322, 303 E. Chicago Ave., Chicago, Illinois. Enter through the Searle Building at 320 E. Superior (around the corner). The conference room is on the fifth floor. There are public parking lots 2 blocks away on Erie Street near Lake Shore Drive.

All EMBS members and any interested non-members are urged to attend.

COMING 1987 ASQC-IEEE RELIABILITY MANAGEMENT SEMINAR

Tentative Date:

Saturday, February 21, 1987 (9:30 A.M. - 12:30 P.M.)
Midway Motor Lodge, Elk Grove, IL

Topic:

MANAGEMENT VS. ENGINEERING -
WHO IS RESPONSIBLE FOR RELIABILITY?

A panel of 5 or 6 key executives in the industries of electronics, telecommunications, independent laboratories, consumer products-electromechanical, and component manufacturing processes will address your reliability problems.

Objective:

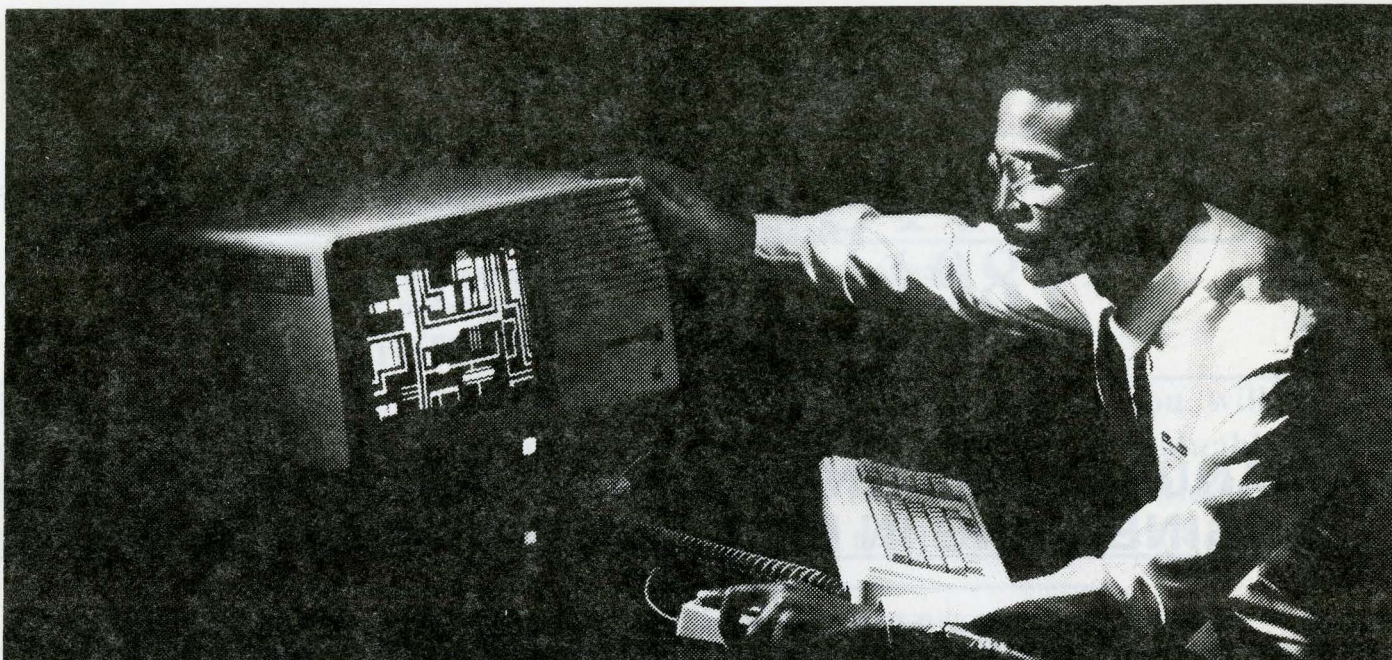
Bring your problems and take home the solution!

Approach:

Presentations will be practical, actual cases from daily operations. So you think that you have a unique problem. An exchange of possible solutions will follow the presentations.

Who:

The seminar is intended for reliability, product assurance, quality assurance, and design engineers; managers, supervisors, and group leaders; top management, vice-presidents, and CEO's.



Systems for Success

"A few people working as a team will produce more than many working as individuals."

Charles P. McCormick

The true breakthroughs in technology are born of a success system in an environment of cooperation and teamwork among individuals who have the opportunity to test and refine their ideas.

At Northrop DSD, you'll get the chance to test your ideas on today's most advanced electronics systems. We provide the challenges. You provide the ideas. Opportunities at Northrop DSD include:

Manager, Reliability Engineering

BSEE or equivalent, (MSEE preferred), and 8-10 years of reliability engineering experience including 3 years as a manager within an electronics manufacturing environment. Familiarity with military specifications is preferred. Assume responsibility for a staff of 20+ engineers. Position will lead reliability design efforts for all division programs.

Sr. Project Engineer: Receiver Technology

BSEE or equivalent. Advanced Degree preferred. Experience (12+ years) with receivers including project management and staff supervision. Knowledge of broadband receivers, video processing, digital signal processing, high speed log amps, filters, signal characterization, microwave integrated circuits, hybrids, and surface mount technology required.

Sr. Manufacturing Engineer

BSEE, BSME or equivalent, and 5-10 years experience within a military electronics environment. Will support manufacturing in the specification of technologies and fabricating processes utilized in the assembly of surface mounted devices, leadless chips, and power supplies used in military airborne electronic countermeasures systems. Must provide necessary expertise associated with the resolution of problems inherent to new product introduction into assembly. Familiarity with automated material handling and processing assembly technologies required.

Antenna Design Engineers

BSEE or Physics or equivalent, MS desirable. Requires knowledge

of phased arrays, monopulse D.F. systems and millimeter wave techniques.

Power Supply Design Engineers

BSEE or equivalent, MS desirable. Perform IR & D activities involving new techniques development in high voltage microwave/millimeter wave transmission, nanosecond control of high DC voltages and modulation of microwave tube devices.

Advanced Technology Engineers

MICROWAVE: Active and/or passive microwave and millimeter wave integrated circuit design experience involving components such as oscillators, amplifiers, mixers, detectors and filters and integrated subsystems. Experience with monolithic microwave integrated circuit research design/development and computer-aided design is required.

RECEIVERS: Conceptual design, fabrication, and test of state-of-the-art receiver systems for ECM/Elint applications. Familiarity with systems architecture, signal processing, and channelized, set-on, and micro-scan techniques is desirable.

ANALOG: Specialists in videoamplifiers, filters, A/D and D/A conversion; background should include feedback theory analysis and computer-aided circuit analysis.

DIGITAL: Design/develop high speed signal processing and control systems; microprocessor controlled hardware, D/A and A/D conversion, digital signal processing utilizing very high speed logic, TTI, ECL, CMOS, GaAs, Gate Arrays and Pal's.

Qualified candidates are invited to submit resume with salary requirements to: **Supervisor Staffing, NORTHROP CORPORATION, DEFENSE SYSTEMS DIVISION, 600 Hicks Road, Rolling Meadows, IL 60008.** We are an equal opportunity employer M/F/V/H. All positions require U.S. Citizenship.

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Electronics Systems Group

Northrop DSD: Where the individual thrives...on teamwork.