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ELECTRICAL ENGINEERING®

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63

NEW STAFF LINE-UP AT HEADQUARTERS

INCLUDES MAJOR CHANGES IN LINE ORGANIZATION, PERSONNEL, AND EMPLOYEE RESPONSIBILITIES

A major reorganization of Headquarters staff is now 90 percent complete, according to IEEE General Manager H. A. Schulke. The reconfiguration, initiated in January and first reported on in the Feb. EE, no. 62, is aimed at achieving maximum efficiency in Headquarters' operations at a time of severe economic hardship for the Institute. It comes in the wake of an 8-percent reduction in the professional staff—a measure necessary despite this year's increase in the level of basic member dues from \$30 to \$35—and it means that EE readers will want to acquaint themselves with "who's doing what at HQ."

As shown in the organization chart on p. 2A of this issue, Charles Stewart, formerly Director of Member and Field Services, is now Senior Staff Director in charge of the Institute's support services in Piscataway, N.J. Taking over Mr. Stewart's Field responsibilities is Robert Asdal, who continues, for the time being, in his former capacity as Manager of Student Services. Emily Sirjane, who has served as Manager of Field Services for many years, has assumed the function of Manager, Corporate Services, and will be concerned with services rendered to the Board of Directors, the Executive Committee, and the Awards Board, and with support for IEEE Standing Committees (see profile on p. 3).

Another major change in the Headquarters' line-up involves Richard Emberson, the Institute's long-time Director of Technical Services. Dr. Emberson is now Director of Educational and Field Services in addition to his duties as Technical Services Director. Assisting Dr. Emberson are Robert Asdal and Emma White, another experienced IEEE employee who is now supervising Educational Services. And a new face has been added to Dr. Emberson's staff: Ivan G. Easton (see p. 3) has been appointed head of IEEE's Standards

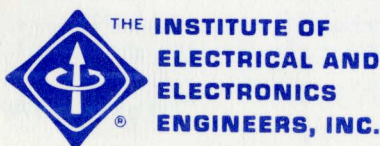
Program, succeeding Sava Sherr who has become deputy managing director for energy matters at the American National Standards Institute.

IEEE's Professional Services staff has also experienced significant changes. Headquartered in Washington, D.C., Professional Services Director Leonard Farrell's staff has been expanded with the addition of two new Program Managers, Dorothy Bomberger and Leo Fanning. They join Joseph Casey who has shifted his efforts from New York to Washington to become a Program Manager under Mr. Farrell. Acting as Consultants to IEEE's Washington Office are John Kinn, formerly Educational Services Director, and Ralph Clark, well known to those Institute members who have had occasion to drop in on IEEE's Washington Office over the years.

New faces and old, IEEE's staff is dedicated to serving the Institute's volunteer officers. Call us, using the key telephone numbers listed below the organization chart on p. 2A. We're here to help.

IEEE BUDGET UNDER KNIFE--AGAIN!

For the second time this year, IEEE's budget has been slashed. In the latest instance, the Executive Committee of the Board of Directors, at its March meeting, called upon the Institute's Vice Presidents to reduce expenses by 5 percent across the board. This decision results from a survey indicating potential short-falls in dues collection, as well as a decline in standards income and revenues from certain other Institute activities. Specifically ruled out are any further staff layoffs (in January, the first round of 1976 economies had been achieved through an 8-percent staff reduction).



A management newsletter on IEEE operations . . . to encourage communication among all organizational entities and the staff . . . **ELECTRICAL ENGINEERING®** is published bimonthly by IEEE, 345 East 47 Street, New York, N.Y. 10017

EYE ON THE EXECUTIVE

Another dues hike has been recommended by IEEE President Joseph K. Dillard. Speaking in an interview that was published in the March SPECTRUM, Mr. Dillard noted that "the issue regarding the dues for 1977 ... will have to be decided at the May meeting" of the Board of Directors. He further stated that to fund "programs that our members want and that they require" without increasing dues for next year would mean a deficit budget. "I don't believe in deficit spending," Mr. Dillard told SPECTRUM. "My personal view is that we ought to go for the dues increase--as painful as it may be."

Candidates for 1977 IEEE President and Executive Vice President were announced by the Board of Directors following a vote at its January meeting. Chosen to run for President in the annual election was Robert M. Saunders, this year's Vice President of Regional Activities. Running for Executive Vice President will be Robert D. Briskman, 1976 Vice President of Technical Activities. Dr. Saunders is a professor of electrical engineering at the University of California at Irvine and Mr. Briskman is assistant vice president, Fixed Systems, at the COMSAT General Corp. in Washington, D.C.

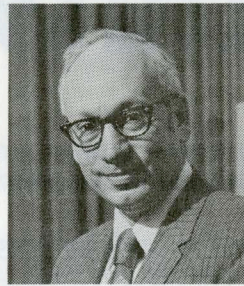
Petition candidates may submit their petitions up until noon of July 30, 1976. Further, in accordance with Policy and Procedure sections 12.3-12.5, those desiring to put statements into the August issue of SPECTRUM must submit them by May 28. Further details of a new SPECTRUM editorial policy--endorsed by the Executive Committee at its March 13 meeting--regarding publicity for all candidates will appear in SPECTRUM's April issue in "Inside IEEE."

ELECTRO 76's schedule of events has been released. This first annual international convention and exposition--representing the merger of INTERCON and NEREM and running this year in Boston, Mass., from May 11 through May 14--will feature 34 technical sessions (see p. 21) to be presented at the Sheraton-Boston Hotel. The exhibition--a

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sell-out comprising 508 exhibit booths to be occupied by 255 exhibitors--will be sited at the Hynes Memorial Auditorium adjoining the hotel. For further details, see the May SPECTRUM.

Profile:
Jerome J. Suran



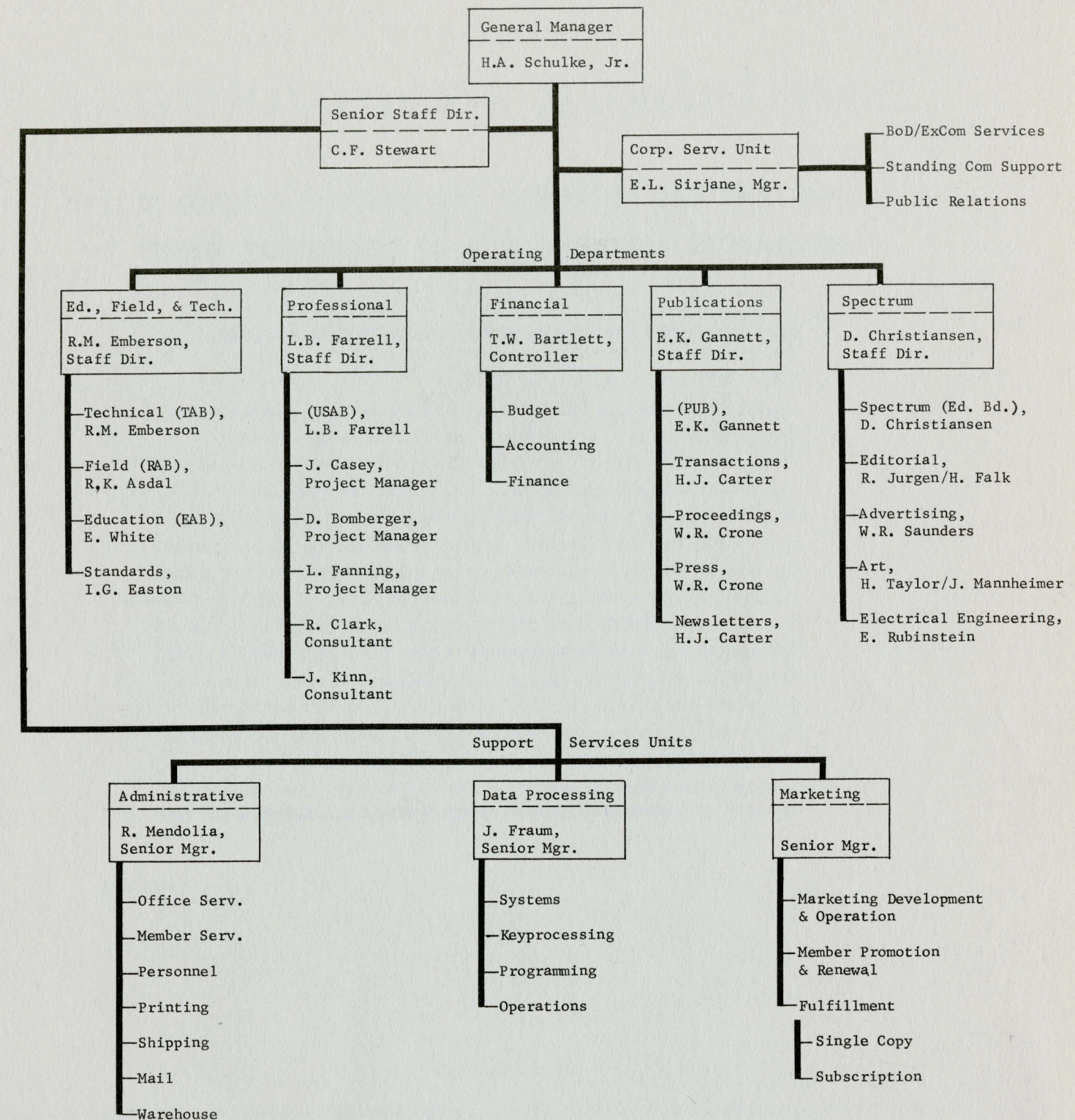
IEEE's 1976 Vice President of Publications Activities is Jerry Suran. A Fellow of the Institute, he is a long-time employee (since 1952) of General Electric, where he is currently manager of GE's Electronics Laboratory in Syracuse, N.Y. Under Mr. Suran, a team of over 200 people pursue R&D activities for GE's defense, industrial, and consumer markets. Prior to joining GE, he earned the B.S.E.E. from Columbia University, in 1949, and worked for J. W. Meaker & Co. and Motorola. He is a Past Chairman of IEEE's Circuits Committee, International Solid State Circuits Conference, and Solid State Circuits Subcommittee, and has been a member of committees of the National Academy of Science, the National Science Foundation, and the Engineer's Council for Professional Development--to mention only a few of his professional affiliations.

This is the second in a series of profiles on IEEE officers elected by the Annual Assembly composed of elected Directors.

The Fellow Grade Nominations deadline is April 30. Last-minute queries can be made of Emily Sirjane at Headquarters.

The June 1 nominations deadline for several important IEEE medals is fast approaching. The medals concerned are: this year's new Alexander Graham Bell Medal for outstanding contributions to the advancement of telecommunications--an award carrying an honorarium of \$10,000--and IEEE's Medal of Honor, Edison Medal, Founders Medal, Lamme Medal, and Education Medal. For nomination

EYE ON THE EXECUTIVE (continued)



IEEE HEADQUARTERS
345 East 47th Street
New York, N. Y. 10017

IEEE SERVICE CENTER
445 Hoes Lane
Piscataway, N.J. 08854
(201) 981-0060

Information	(212) 644-7900	Field Services	(212) 644-7751
General Manager	(212) 644-7910	Publishing Services	(212) 644-7560
Controller	(212) 644-7748	Spectrum	(212) 644-7555
Corporate Services	(212) 644-7750	Technical Services	(212) 644-7890
Educational Services	(212) 644-7860	Telex	236411

IEEE WASHINGTON OFFICE
2029 K Street N.W.
Washington, D.C. 20006
(202) 785-0017

Employment guidelines

Better employee-employer relations are the object of these guidelines to professional employment

This is the first edition of the "Guidelines to Professional Employment for Engineers and Scientists" as recently approved by the IEEE Board of Directors. The guidelines were developed as the result of the efforts of 17 engineering societies (see page 60), including IEEE, to answer the need for scientists and engineers to play a larger role in the development of employment policies—a need that became particularly evident when the large-scale layoffs and relocations of recent months revealed certain deficiencies on the part of some employers. It is emphasized that the guidelines are by no means to be considered final and complete as they stand, but are in a state of dynamic change. The document is subject to periodic review by the participating societies for the sake of keeping it current, and a mechanism has been set up for incorporating revisions and amendments into future editions. However, even in this preliminary form the guidelines should help to provide a firm basis for the employment of professional engineers and scientists and are expected to have significant impact in improving relations for employers of these professionals. To obtain additional copies see page 60.

Foreword

This publication is a guide to mutually satisfying relationships between professional employees and their employers. In this document, professional employees are defined as engineers and scientists. These guidelines cover factors peculiar to professional employment and omit many generally accepted precepts of personnel relations which are common to all classifications of employees.

These guidelines are applicable to professional employment in all fields and in all areas of practice (including both nonsupervisory and supervisory positions), and are based

on the combined experience and judgment of all of the endorsing societies.

It must be stressed in the implementation of these guidelines that they represent desirable general goals rather than a set of specific minimum standards. Wide variations in circumstances and individual organizational practices make it inappropriate to judge any given employer on the basis of any single employment policy or fringe benefit. Rather, attention should be devoted to evaluating the entire employment "package," including such intangibles as opportunity

for future advancement or participation in profits, location, local cost of living, and other factors which may be important to professional employees.

Observance of the spirit of these guidelines will minimize personnel problems, reduce misunderstandings, and generate greater mutual respect. It is anticipated that they will be of use to employers in evaluating their own practices, to professional employees in evaluating both their own responsibilities and those of their employers, and to new graduates and other employment seekers in obtaining a better picture of prospective employers. Where differences in interpretation occur, they may be referred to the headquarters office of any of the endorsing societies.

Objectives

The endorsing societies, with their avowed purpose to serve the public and their professions, recognize clearly that in order to make a maximum contribution, it is necessary for professional employees and employers to establish a climate conducive to the proper discharge of mutual responsibilities and obligations. Essential and prerequisite to establishing such a climate are

1. Mutual loyalty, cooperation, fair treatment, ethical practices, and respect are the basis for a sound relationship between the professional and his/her employer.

2. The professional employee must be loyal to the employer's objectives and contribute his/her creativity to those goals.

3. The responsibility of the professional employee to safeguard the public interest must be recognized and shared by the professional employee and employer alike.

4. The professional growth of the employee is his/her prime responsibility, but the employer undertakes to provide the proper climate to foster that growth.

5. Factors of age, race, religion, political affiliation, or sex should not enter into the employee/employer relationship.

Effective use of these guidelines is accomplished when the employer provides each present and prospective professional employee with a written statement of policies and practices relating to each of the items covered. Adherence to these guidelines by employers and professional employees will provide an environment of mutual trust and confidence. Local conditions may result in honest differences in interpretation of, and in deviation from, the details of these guidelines. Such differences should be resolved by discussions leading to understanding which meets the spirit of the guidelines.

1. Recruitment

Employment should be based solely on professional competence and ability to adequately perform assigned responsibilities, with employee qualifications and employment opportunities represented in a factual and forthright manner. The employer's offer of employment and the employee's acceptance should be in writing, including a clear understanding with regard to relocation assistance; past, present, and future confi-

dentiality and patent obligations; salary; expected duration of employment; and other relevant employment conditions and benefits.

Professional employee

(1) The professional employee (applicant) should attend interviews and accept reimbursement only for those job opportunities in which he/she has a sincere interest. The applicant should prorate costs for multiple interviews during a given trip on a rational basis. The guiding principle should be that the applicant receives neither more nor less than the cost of the total trip.

(2) The applicant should carefully evaluate past, present, and future confidentiality obligations in regard to trade secrets and proprietary information connected with the potential employment. He/she should not seek or accept employment on the basis of using or divulging any trade secrets or proprietary information.

(3) Having accepted an offer of employment, the applicant is morally obligated to honor his/her commitment unless formally released after giving adequate notice of intent.

(4) The applicant should not use the funds or time of his/her current employer for the purpose of seeking new employment unless approved by the current employer.

Employer

(1) The policy of the employer regarding payment of expenses incurred by the applicant in attending the interview must be made clear prior to the arranged interview.

(2) The applicant should have an interview with his/her prospective supervisor in order to understand clearly the technical and business nature of the job opportunity. This prospective supervisor should ethically be responsible for all representations regarding the conditions of employment.

(3) Applications for positions should be confidential. The expressed consent of the applicant should be obtained prior to communicating with a current employer.

(4) Employers should minimize hiring during periods of major curtailment of personnel. Hiring of professional personnel should be planned at all times to provide satisfying careers.

(5) Agreements among employers or between employer and professional employee which limit the opportunity of professional employees to seek other employment or establish independent enterprise are contrary to the spirit of these guidelines.

(6) Having accepted an applicant, an employer who finds it necessary to rescind an offer of employment should make adequate reparation for any injury suffered.

2. Terms of employment

Terms of employment should be in writing, in accordance with the applicable laws, and consistent with generally accepted ethical professional practices.

Professional employee

(1) The professional employee should be loyal to

his/her employer. He/she should accept only those assignments for which he/she is qualified; should diligently, competently, and honestly complete his/her assignments; and should contribute creative, resourceful ideas to his/her employer while making a positive contribution toward establishing a stimulating work atmosphere and maintaining a safe working environment.

(2) The professional employee should have due regard for the safety, life, and health of the public and fellow employees in all work for which he/she is responsible. Where the technical adequacy of a process or product is involved, he/she should protect the public and his/her employer by withholding approval of plans that do not meet accepted professional standards and by presenting clearly the consequences to be expected if his/her professional judgment is not followed.

(3) The professional employee should be responsible for the full and proper utilization of his/her time in the interest of his/her employer and the proper care of the employer's facilities.

(4) The professional employee should avoid any conflict of interest with his/her employer, and should immediately disclose any real or potential problem which may develop in this area. He/she should not engage in any other professional employment without his/her employer's permission.

(5) The professional employee should not divulge technical proprietary information while he/she is employed. Furthermore, he/she should not divulge or use this information for an agreed-upon period after employment is terminated.

(6) The professional employee should only sign or seal plans or specifications prepared by himself/herself or others under his/her supervision, or plans or specifications that he/she has reviewed and checked to his/her personal satisfaction.

(7) The professional employee should not accept payments or gifts of any significant value, directly or indirectly, from parties dealing with his/her client or employer.

Employer

(1) The employer should inform professional employees of the organization's objectives, policies, and programs on a continuing basis.

(2) The professional employee should receive a salary in keeping with his/her professional contribution which reflects his/her abilities, professional status, responsibility, the value of his/her education and experience, and the potential value of the work he/she will be expected to perform. The salary should be commensurate with the salaries of other employees, both professional and nonprofessional. Sound indirect compensation programs should be provided. The most important are retirement plans, health and life insurance, sick leave, paid holidays, and paid vacations.

(3) The employer should establish a salary policy, taking into account published salary surveys, and provide equitable compensation for each employee commensurate with his/her position and performance. The salary structure should be reviewed annually to keep the assigned dollar values adjusted to the current economy.

(4) Each individual position should be properly classified as to its level in the overall salary structure. The evaluation of each position should consider such factors as the skill required for acceptable performance, the original thinking required for solving the problems involved, and the accountability for an action and its consequences.

(5) Economic advancement should be based upon a carefully designed performance review plan. Provision should be made for accelerated promotions and extra compensation for special accomplishments. At least annually, performance evaluations and salary review should be conducted for the individual professional employee by his/her supervisor. Performance evaluations should include discussion on how well he/she has performed his/her work and what he/she can do to improve. The professional employee should be clearly informed if his/her performance is considered unsatisfactory. All promotions in salary and responsibility should be on an individual merit basis.

(6) For the professional employee whose aptitude and interests are technical rather than supervisory, equivalent means of advancement and recognition should be provided.

(7) It is inappropriate for a professional employee to use a time clock to record arrival and departure, particularly since situations may arise which require unusual effort. However, if the work demanded of a professional employee regularly exceeds the normal working hours for extended periods, the employer should compensate him/her for this continuing extra effort according to a clearly stated policy.

(8) The professional employee should be included in an adequate pension plan which provides for early vesting of rights in safeguarded pension funds. Vesting should be so scheduled that it does not seriously affect either the employer's or the professional employee's decision as to continued employment. As a goal, eligibility for participation should not exceed one year after employment; maximum full vesting time should be five years, and the minimum pension upon reaching retirement should be no less than 50 percent of the average best five years' salary (based on a 40-year working career with a single employer). If a pension plan is not provided, or the benefits are less than outlined above, other compensation should be increased proportionately.

(9) The employer should provide office support staff, and physical facilities which promote the maximum personal efficiency of the professional employee.

(10) Duties, levels of responsibility, and the relationship of positions within the organizational hierarchy should be clearly defined and should be accurately reflected in position titles.

(11) The employer should not require the professional employee to accept responsibility for work not done under his/her supervision.

(12) The employer should provide formal assurance through organizational policy that any suits or claims against individual professional employees employed by the organization in connection with their authorized professional activities on behalf of the employer will be defended by the employer.

(13) There should be no employer policy which requires a professional employee to join a labor organization as a condition of continued employment.

(14) It is the employer's responsibility to clearly identify proprietary information.

3. Professional development

The employee and the employer share responsibility for professional development of the employee—the employee to establish the goals and take the initiative to reach them, and the employer to provide the environment and attitude which are conducive to professional growth.

Professional employee

(1) Each professional employee is responsible for maintaining his/her technical competence and developing himself/herself through a program of continuing education.

(2) The professional employee should belong to and participate in the activities of appropriate professional societies in order to expand his/her knowledge and experience. Such participation should include the preparation of professional and technical papers for publication and presentation.

(3) The professional employee should achieve appropriate registration and certification as soon as he/she is eligible.

(4) The professional employee should recognize his/her responsibility to serve the public by participating in civic and political activities of a technical and nontechnical nature. Such participation, however, should be undertaken solely as a responsibility of the individual without interfering with the timely execution of his/her work and without involving the employer.

Employer

(1) The employer, as a matter of policy, should provide an atmosphere which promotes professional development. This will include, among other programs, encouraging and supporting membership and attendance at professional society meetings and at formal courses of study which will enable the employee to maintain his/her technical competence.

(2) The employer should consider compensated leaves of absence for professional study as a means of enabling the employee to improve his/her competence and knowledge in a technical field.

(3) Consistent with employer objectives, the employee should be given every opportunity to publish his/her work promptly in the technical literature and to present his/her findings at technical society meetings.

(4) It is in the best interest of the employer to encourage continuing education to broaden the qualifications of employees through self-improvement, in-house programs, formal education systems in the institutions of higher learning, and meetings and seminars on appropriate subjects.

(5) The employer should encourage and assist professional employees to achieve registration and/or certification in their respective fields.

4. Termination and transfer

Adequate notice of termination of employment should be given by the employee or employer as appropriate.

Professional employee

(1) If the professional employee decides to terminate his/her employment, he/she should assist the employer in maintaining a continuity of function, and should provide at least one month's notice. When termination is initiated by the employee, no severance pay is due.

Employer

(1) Additional notice of termination, or compensation in lieu thereof, should be provided by the employer in consideration of responsibilities and length of service. As a desirable goal, permanent employees (after an initial trial period) should receive notice or equivalent compensation equal to one month, plus one week per year of service. In the event that the employer elects notice in place of severance compensation, then the employee should be allowed reasonable time and facilities to seek new employment.

(2) Employers should make every effort to relocate terminated professional employees either within their own organizations or elsewhere. Consideration should be given to continuing major employee protection plans for some period following termination, and to their full reinstatement in the event of subsequent reemployment.

(3) If a professional employee is involuntarily terminated on the basis of early retirement, the employer should consider an equitable provision for an adequate income for the period remaining until the employee receives a pension at his/her normal retirement age.

(4) In a personal interview, the employer should inform the employee of the specific reasons for his/her termination.

(5) The employer should provide an adequate transfer-time notice, with due consideration to the extent of personal matters which the professional employee must settle before moving. All normal costs of the transfer should be paid by the employer, including moving expenses, realtor fees, travel expenses to the new location to search for housing, and reasonable living expenses for the family until permanent housing is found. Unusual moving expense reimbursement should be settled in a discussion between the employee and employer.

Participating societies

American Association of Cost Engineers; American Chemical Society; American Institute of Aeronautics and Astronautics; American Institute of Chemical Engineers; American Institute of Chemists; American Institute of Industrial Engineers; American Institute of Mining, Metallurgical and Petroleum Engineers; American Society for Metals; American Society for Quality Control; American Society of Civil Engineers; American Society of Heating, Refrigerating and Air-Conditioning Engineers; American Society of Mechanical Engineers; Engineers Council for Professional Development; Engineers Joint Council; Institute of Electrical and Electronics Engineers, Inc.; National Institute of Ceramic Engineers; National Society of Professional Engineers.

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IEEE Code of Ethics

In response to the members' mandate, a set of guidelines on professional relationships is presented

In an important action, the IEEE Board of Directors adopted an IEEE Code of Ethics for Engineers at its meeting of December 4, 1974. The new code resulted from the combined efforts of a number of volunteer Committees and Boards within IEEE, specifically the United States Activities Board (USAB), USAB's Ethics and Employment Practices Committee, the Executive Committee and its ad hoc Committee on Ethics, and the Board of Directors. In addition, expert views were obtained from the Committee

on Social Implications of Technology and many other IEEE organizational units.

The adoption of this Code is a significant step forward in the area of professionalism. It is responsive to the decision of the voting members in 1972 that one of the Institute's constitutional objectives should be the establishment of standards of ethical conduct. I urge every member to read and reflect on the contents of this living document with great care, and invite individual comments. *Arthur P. Stern, President*

IEEE CODE OF ETHICS FOR ENGINEERS

PREAMBLE

Engineers affect the quality of life for all people in our complex technological society. In the pursuit of their profession, therefore, it is vital that engineers conduct their work in an ethical manner so that they merit the confidence of colleagues, employers, clients and the public. This IEEE Code of Ethics is a standard of professional conduct for engineers.

ARTICLE I

Engineers shall maintain high standards of diligence, creativity and productivity, and shall:

1. Accept responsibility for their actions;
2. Be honest and realistic in stating claims or estimates from available data;
3. Undertake engineering tasks and accept responsibility only if qualified by training or experience, or after full disclosure to their employers or

- clients of pertinent qualifications;
4. Maintain their professional skills at the level of the state of the art, and recognize the importance of current events in their work;
5. Advance the integrity and prestige of the engineering profession by practicing in a dignified manner and for adequate compensation.

ARTICLE II

Engineers shall, in their work:

1. Treat fairly all colleagues and co-workers, regardless of race, religion, sex, age or national origin;
2. Report, publish and disseminate freely information to others, subject to legal and proprietary restraints;
3. Encourage colleagues and co-workers to act in

- accord with this Code and support them when they do so;
4. Seek, accept and offer honest criticism of work, and properly credit the contributions of others;
5. Support and participate in the activities of their professional societies;
6. Assist colleagues and co-workers in their professional development.

ARTICLE III

Engineers shall, in their relations with employers and clients:

1. Act as faithful agents or trustees for their employers or clients in professional and business matters, provided such actions conform with other parts of this Code;
2. Keep information on the business affairs or technical processes of an employer or client in confidence while employed, and later, until such information is properly released, provided such actions conform with other parts of this Code;
3. Inform their employers, clients, professional so-

- cieties or public agencies or private agencies of which they are members or to which they may make presentations, of any circumstance that could lead to a conflict of interest;
4. Neither give nor accept, directly or indirectly, any gift, payment or service of more than nominal value to or from those having business relationships with their employers or clients;
5. Assist and advise their employers or clients in anticipating the possible consequences, direct and indirect, immediate or remote, of the projects, work or plans of which they have knowledge.

ARTICLE IV

Engineers shall, in fulfilling their responsibilities to the community:

1. Protect the safety, health and welfare of the public and speak out against abuses in these areas affecting the public interest;

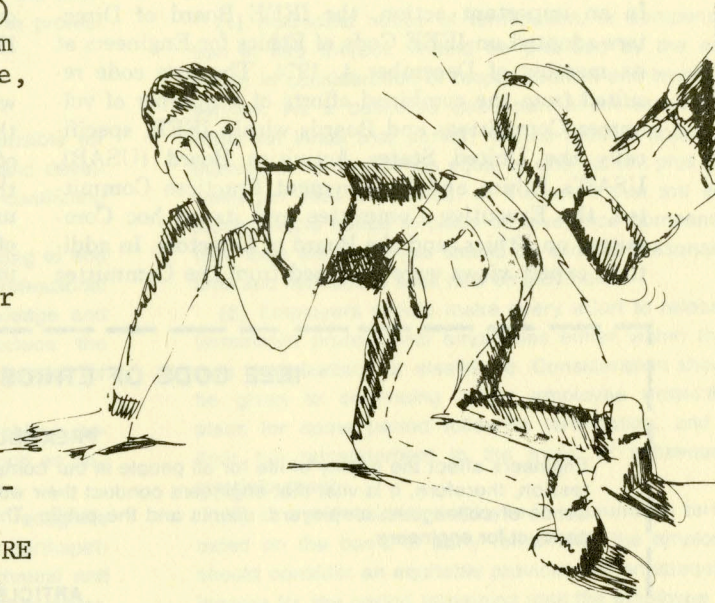
2. Contribute professional advice, as appropriate, to civic, charitable or other non-profit organizations;
3. Seek to extend public knowledge and appreciation of the engineering profession and its achievements.

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USAB MAKES GRANT
TO STUDY LEGAL RIGHTS
OF ENGINEERS

The United States Activities Board (USAB) of the IEEE has funded a grant request from the La Verne College Law Center in La Verne, Calif., to study the legal rights of engineers. The Study Group, called SCORE for Special Committee on Rights of Engineers, is headed by Selwyn Berg. Mr. Berg is a graduate engineer who has returned to La Verne College to complete his law studies. As a part of the research toward his Doctor of Laws Degree he has undertaken this Project because of his concern for the legal rights of members of the engineering profession.

Specifically, SCORE will investigate complaints submitted by engineers who feel their legal rights have been violated. SCORE will also investigate legal cases that appear in the Court Reports, although most cases do not get into such case histories, regardless of merit, because the engineer frequently accepts actions against him without seeking legal recourse.



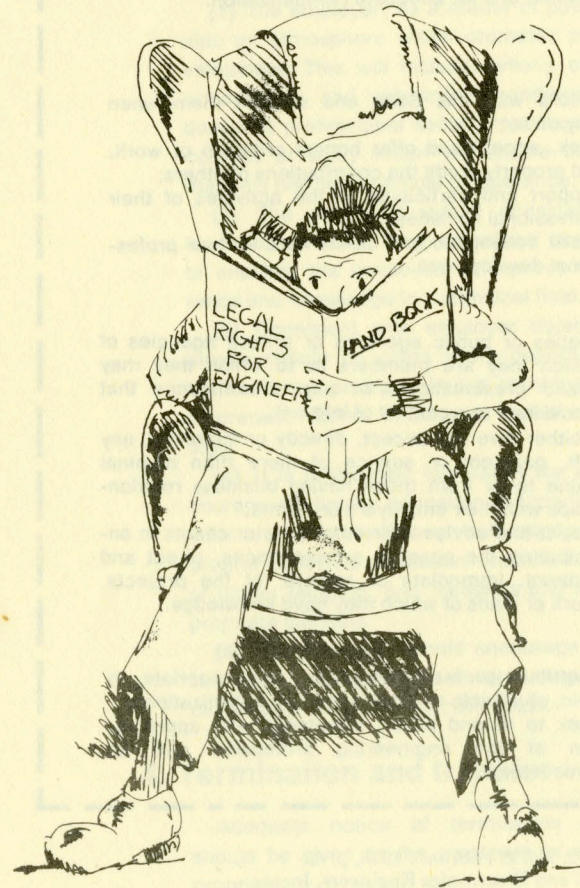
The SCORE Team plans to document the problems referred to them and the disposition of each case. Using this material as input, SCORE will select those cases which would be of greatest interest to a majority of the membership, and prepare a Handbook for use by those members who may need such reference material for initiating court actions. An article based on the contents of this Handbook will be submitted to the American Bar Association for publication.

IEEE members who would like the assistance of SCORE should prepare a communication to the Law Center and include the following:

- Description of any actions against an engineer which resulted in economic hardship or loss of professional status because of lack of timely legal knowledge.

Communications should be sent to:

Mr. Selwyn Berg
SCORE
La Verne College Law Center
La Verne, Calif. 91750



ELECTRO76 The Professional Program at a glance

Sheraton-Boston Hotel, May 11-14, 1976

Day	Time	Topic	Room
Tuesday May 11	10 am	1 Trends in Communications Components	Independence Room
		2 Developments in Optical Fiber Transmission	Constitution Room
		3 Microprocessors: The Future Is Now	Grand Ballroom
		4 Computer Communication Networks	Republic Room
		5 Trends in Power Devices	Commonwealth Room
		6 New Uses of Signal Processing in Measurement	Independence Room
Tuesday Evening May 11, 8 pm		7 Advances In Display Devices	Constitution Room
		8 Design Aids For Microprocessors	Grand Ballroom
		9 ATE Role in Field Service for PCBs	Republic Room
		10 Production Research and Technology	Commonwealth Room
		11 Engineering Management Techniques Today and Tomorrow	Independence Room
		12 Effects of Noise on Man	Constitution Room
Wednesday May 12	10 am	13 Microprocessor Applications	Grand Ballroom
		14 Automatic Testing of Printed Wiring Boards	Republic Room
		15 Computer Technology Assessment	Commonwealth Room
	2 pm	16 Power Semiconductors in Off-Line Switching Supplies	Independence Room
		17 Electronic Problems in Medical Monitoring	Constitution Room
		18 Microprocessor/Microcomputer Testing	Grand Ballroom
Thursday May 13	10 am	19 The Synthesizer: Component, Signal Source, Complete Instrument	Republic Room
		20 Trends in Communications Equipment	Commonwealth Room
		21 CAD I: Modeling Analysis, Problems	Independence Room
		22 Crime and Computers	Constitution Room
		23 High-Level Microprocessor Languages	Grand Ballroom
		24 Instrumentation: How Smart Should it Be?	Republic Room
Friday May 14	2 pm	25 Trends in Radar Systems	Commonwealth Room
		26 CAD II: Digital Circuit Development	Independence Room
		27 The Engineer After 40	Constitution Room
		28 Designing and Debugging Micro-Processor-Based System	Grand Ballroom
		29 IEEE Standards 488 and 583 As Engineering Tools	Republic Room
		30 Radar Electronic Counter-Countermeasures	Commonwealth Room
Friday May 14	10 am	31 What's New in Air Traffic Control?	Independence Room
		32 Advanced Pocket Calculators	Republic Room
		33 New Memory Techniques	Commonwealth Room
		34 A/D and D/A-To-Processor Interfaces	Fairfax Room

continuing education services

It takes "guts" to keep apace with the rapid technological advances we are experiencing today. Each and every one of us knows of technologies that were merely hinted at a few years ago, which today have burgeoned into significant industries.

We're living in a mobile society that has an insatiable appetite which constantly makes demands of its members. And yet, a very real problem exists. Most of us feel that employment limits us in responding to this increasing emphasis of continuously updating our knowledge just to maintain that competitive edge.

It may interest you to know that the Educational Activities Board of the Institute mandated a positive education expansion program in 1974 that proposed a ten-fold growth in ten years. Ever since that announcement, establishment of a viable expansion program for educational activities has become our principal objective. For the first time in the history of the Institute we have introduced both a Spring and Fall session to meet the increasingly accelerated demand for continuing professional education. We have developed some two dozen courses in many fields to satisfy the needs of our Sections. We ask that you scan the list below to see if any are applicable to your specific need. Or, I invite you to contact me to discuss a development for your particular need or, to modify, if necessary, any of the material to your specifications.

COMPUTER AND INFORMATION SCIENCES

The CAMAC Modular Interface Standard - (one day)
Minicomputer Realtime Operating Systems - (one day)
Computer Aided Filter Design - (one day)
Minicomputers - (two days)
Electronic Information Processing - (two days)
Microprocessors - (one day)
Microprocessors Seminar - (two days)
Microprocessors Seminar - (five days)
Computer Networks - A Tutorial - (one day)

BUSINESS AND MANAGEMENT

How to Start and Finance a New Business - (one day)
John C. Crystal's Life/Work Planning Process (one day)
The Management Imperative - Effective Communication - (one day)
How to Convert Your Ideas Into Dollars - (one day)
Law, Legislation, the Engineer and Society - (one day)
Planning: Professional and Personal - (one day)

POWER SYSTEMS

Power Systems - Interconnections - (two days)
Power Systems - Planning (two days)
Power Systems - Relaying - (two days)
Introduction to Solid State Power Electronics - (two days)

ELECTRICAL AND ELECTRONICS ENGINEERING

Infrared Testing - (two days)

COMMUNICATIONS

Engineering Consideration for Microwave Communications Systems
(five days)



THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

FOR ADDITIONAL INFORMATION CONTACT VINCENT J. GIARDINA
445 HOES LANE, PISCATAWAY, NEW JERSEY 08854
AREA CODE 201 981-0060

COURSE OF THE MONTH

FIVE -DAY MICROPROCESSORS COURSE WITH "HANDS-ON" CAPABILITY

The IEEE's forthcoming Five-Day Microprocessors Workshop is going to be different. It will include true hands-on training on the actual microprocessor hardware, not simulators, using special portable units designed for the course.

The goal of the course is to upgrade the design engineering Microprocessor technology in the areas of architecture, programming, systems design, applications, and economics. At the end of five days, the design engineer should have a fresh view of what is presently available in the microprocessor area and what is likely to be forthcoming. He should be able to examine a problem in his own field and determine whether a microprocessor is an appropriate solution. He should also be able to write his own programs for a microprocessor and supervise with understanding others who write such programs for him.

The course is intended for the active electronics design engineer who is well versed in the development of digital electronics at the chip-interface level. While a quick review of digital systems is offered at the beginning of the course, a person who is not active in hardware design (or does not at least have a fundamental hardware background) will have considerable difficulty with the material.

The course will be taught by Dr. Imsong Lee, Professor Electrical Engineering at the University of California at Berkeley and President of the Digital Electronics Corporation of Berkeley, and Dr. William J. Eccles, Head of the Department of Mathematics and Computer Science at the

University of South Carolina. Dr. Eccles is also the course coordinator. A yet unnamed third instructor will cover areas of marketing and economics.

After a review of digital system fundamentals, the course will develop design and programming techniques and present experiments using the Motorola M6800 family of microprocessor chips. This family was chosen as being representative of the more advanced devices on the market. It is built around a bus architecture with great flexibility in interface applications.

The course will emphasize system design and program control of physical devices. The attendees are expected to work out at least five of about eight laboratory projects. The projects will be conducted using portable microcomputers designed by Dr. Lee for the workshop. Each unit has a CPU, Memory, full ASCII keyboard for program and data entry, alphanumeric display, cassette for program storage, and simple I/O devices for experiments. The user programs the machine in assembly code and debugs the program with the aid of powerful debug routines. Suggested projects include a keyboard scanner, a traffic-signal controller, a seven-segment display, a clock, and an organ.

A survey of the marketplace for microprocessors and some information on current applications will conclude the course. Some emphasis will be placed on how to decide when to use a microprocessor and when not to.

COURSE OUTLINE

MONDAY

Fundamentals of Microcomputer Architecture and Programming
Introduction to Microcomputer Architecture
Hardwired Digital System vs Programmed Digital System
Functional Characteristics of Programmable LSI Components including Microprocessor unit (MPU), Memory unit, and Peripheral interface units
Bus-oriented Microcomputer Architecture comprising address, data, and control buses
Basic instruction types and instruction processing
Review of Binary and Decimal Arithmetic
Fundamentals of Programming Concepts and Flowcharting
Introduction to M6800 Microcomputer System
M6800 Family Components including MPU, ROM, RAM, PIA, and ACIA
M6800 Architecture and Instruction Set
Introduction to DE68 Microcomputer
Program preparation and debugging using DE68 Monitor and Debugger

Tuesday

System Design for Programmed I/O and Laboratory Projects 1 and 2
Discussion of Laboratory Projects: Project 1 - Keyboard Scan and Encoding by Software; Project 2 - Traffic Signal Control
M6800 System Layout for Keyboard Input and LED Output
Subset of M6800 Instructions for Project 1 and Project 2
Program preparation for Projects 1 and 2 under supervision of course staff: Flowchart Preparation; Coding and checkout with assistance of course staff
Debugging and execution on DE68 Microcomputer under supervision of course staff

Wednesday

System Design and Laboratory Project 3

Discussion of seven-segment LED display and multiplexing (Lab. Project 3): BCD to seven-segment code conversion by table look-up; Multiplexing multi-digit display under program control; M6800 system design for display multiplexing and keyboard input
Subset of M6800 instructions relevant to display multiplexing
Program preparation for Lab. Project 3 under guidance of course staff
Program debugging and execution under supervision of course staff

THURSDAY

Interrupt-driven I/O Transfer and Laboratory Project 4
Discussion of Laboratory Project 4: 12-hour clock using 4-digit display and timer interrupt; Fundamentals of Interrupt Processing in M6800 Microprocessor Systems; Fundamentals of Interrupt handling in Digital Computer; M6800 System Design for Interrupt-driven I/O; DMA serviced I/O transfer
Program preparation for 12-hour clock under guidance of course staff
Program debugging and execution under supervision of course project and arithmetic routines

FRIDAY

System Development, Application, and Technology Trends
System Development Tools: Cross-assemblers and simulators; Prototyping systems; Enhanced development systems with in-circuit emulation; Assembly language vs high-level language trade-off
Application of Microcomputers: Established applications; Emerging applications
Technology Trends: Microprocessor Technology; Memory technology; Peripheral circuits
Review and Discussion

If you are interested in scheduling this course within your Section, please contact V. J. Giardina



TECHNICAL ACTIVITIES BOARD

The IEEE Board of Directors is reviewing the 1975 Long Range Planning Committee Report and may take action on its recommendations as early as the May 1976 Board of Directors meeting.

About 500 copies of the report, along with proposed revisions of IEEE bylaws on membership, have been distributed to the Technical Activities Board and its Committees, as well as to officers of IEEE Groups and Societies.

Inasmuch as the recommendations of this report, if adopted, will have significant impact on the Institute and particularly its Groups and Societies, all recipients of the report are urged to study it carefully, to discuss it with other members if possible, and to send individual or joint comments to Dr. A. Hoagland, Vice Chairman of Technical Activities, who has been appointed by TAB to assemble and collate all such responses for consideration by TAB OpCom at its May 9 meeting, preceding the meetings of the IEEE Executive Committee and Board on May 10-12. Please note that TAB will meet on May 13, after the Board meeting, so it is most important that your comments be submitted to Dr. Hoagland before the TAB OpCom meeting.

If you have not received a copy of the report, but are interested in participating in this very important review and recommendation process, please call or write Esmi Bidstrup at the TAB office in New York (212) 644-7890.

Your comments on the LRPC report and the proposed bylaw amendments should be addressed to:

Dr. A. S. Hoagland
IBM Corporation
Dept K43- Bldg. 028-1
5600 Cottle Road
San Jose, California 95193

ACT NOW!

See reverse side for important new IEEE policy statement regarding sales and order-taking at IEEE Conferences and Exhibitions.

NEW INSTITUTE POLICY ON SALES AND ORDER-TAKING
AT IEEE CONFERENCES AND EXHIBITIONS

At the IEEE Board of Directors Meeting on January 29, 1976, legal counsel reported that the IRS has ruled that profits from the rental of space will not be taxable if exhibitors are contractually prohibited from selling or order-handling at IEEE exhibitions, and this prohibition is in fact enforced; otherwise such profits are subject to tax. As a result that Board adopted the following policy for inclusion in the 1976 Policy and Procedures Manual.

9.22 Tax Liability Resulting from Sales and Order-Handling in Conjunction with Conference Exhibits

The U. S. Internal Revenue Service established rulings, effective December 1, 1975, that create a tax liability on the surplus derived from conference exhibits if sales or order-handling is permitted in conjunction with such exhibits. The rulings apply to IEEE and similar organizations and thus would affect all conference exhibits and exhibitions sponsored or cosponsored by IEEE.

A. No Sales and Order-Handling

It is IEEE's policy that no sales or order-handling will be permitted in any exhibit booths or other areas controlled by a conference that IEEE sponsors or cosponsors; exceptions are treated in B. below. This policy does not prevent an exhibitor from distributing mail order forms or other literature or from making lists of names of exhibit visitors for post-exhibition solicitations of orders. With a no sales or order-taking policy, no new tax returns are necessary. It is mandatory, however, that each conference clearly and explicitly establish its position and that this position be published in all relevant conference materials, including contracts with exhibitors. Each conference committee must

establish adequate monitoring procedures to make sure that the no-sales or order-taking policy is honored. The final, or summary, report on the conference must set forth the gross and net income derived from exhibits and must have a statement by an appropriate conference officer to the effect that the no-sales or order-taking policy was publicized and monitored; this report must also advise whether or not any violations were found and what corrective actions were taken.

B. Sales and Order-Handling Permitted

A conference or convention sponsored or cosponsored by IEEE that wishes to permit sales and/or order-taking in conjunction with all or part of the associated exhibits, exhibitions, and similar activities must obtain advance approval of the IEEE Executive Committee. A request for approval must contain a detailed conference budget which contains a tax reserve and sets forth how the amount of the reserve has been calculated. If approval is granted, the appropriate conference officers will be provided detailed instructions by the IEEE Controller on necessary records and reports to facilitate filing post-conference tax reports.

C. IEEE Products

Sales and order-handling for IEEE products are permitted in all conference areas provided that it is IEEE that makes the sales and handles the orders. Membership promotions and both single copy sales and subscriptions for IEEE publications are included in this category.

See reverse side for important announcement regarding IEEE Long Range Planning Report.

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forms, contact Una B. Lennon at Headquarters.

PUB NEWS

SPECTRUM P is coming! First in June and again in November, a bargain opportunity is being offered power-industry advertisers. SPECTRUM P is the name of SPECTRUM's power demographic issues offering an exclusive audience of 32,274 Institute power-industry readers at a one-time rate of \$900 per page-- a rate of from 38 to 54 percent lower than the "other" power magazines when measured in CPM. For details, contact Advertising Director William Saunders at Headquarters.

Certification and universal registration, what should IEEE's positions be on these sensitive topics? How should IEEE respond to disparities between employer treatment of engineer employees and the Institute's employment guidelines? What positions should IEEE take on nuclear energy, data privacy, and the periodic imbalance in the supply and demand of EEs? In a May SPECTRUM interview, Vice President of Regional Activities Robert M. Saunders predicts that these difficult issues will be coming up for consideration at Board of Directors' meetings in the near-future.

Incisive explorations by Board members of matters of particular concern to IEEE's members are now a bimonthly feature of SPECTRUM, beginning with the March interview with President Dillard on the Institute's present fiscal crisis, and continuing with interviews of Dr. Saunders and Executive Vice President Robert Cotellessa on IEEE policy-making in May, and again in July with Treasurer B. H. Schneider in the wake of an expected May Board decision on the 1977 member dues.

Four new books are hot off the IEEE Press. They are: Large-Scale Networks: Theory and Design (F. T. Boesch, ed., 496 pp., \$19.95 for nonmembers and \$14.95 for members in clothbound edition, \$9.95 for members in paperbound); Selected Papers in Digital Signal Processing, II (Digital Signal Processing Committee of S-ASSP, ed., 592 pp., \$17.95 for nonmembers and \$13.45 for members in clothbound; \$8.95 for members in paperbound); Optical Fiber Technology (D. Gloge, ed., 440 pp., \$19.95 for nonmembers and \$14.95 for members in cloth, \$9.95 for members in paper); and Communications Channels: Characterization and Behavior (B.

Goldberg, ed., 776 pp., \$22.95 for nonmembers and \$17.20 for members in cloth, \$11.45 for members in paper). Books can be ordered postpaid from: IEEE Service Center, 445 Hoes Lane, Piscataway, N.J. 08854.

STANDARDS NEWS

Standards has a new Director, Ivan G. Easton. Succeeding Sava Sherr, Mr. Easton has long experience in private and government standards, and in international standards. He was instrumental in devising IEEE's initial efforts in the standards area in 1969 when he served as Chairman of the TAB Standards Task Force that reoriented the Institute's Standards Program. Serving in a variety of posts from engineer to senior vice president at the General Radio Company over a period of 37 years, from 1936 to 1973, Mr. Easton joins IEEE as a part-time consultant until such time as he is able to wind up other commitments that have occupied him since 1973. He will then devote his full time to the Institute Standards Program.

At a news conference, Mr. Easton indicated his belief that IEEE's current standards effort must expand in keeping with the increasing needs for standards that can protect consumers and workers, contribute to nuclear safety, and enhance international trade growth. He further characterized IEEE's present level of allocations to standards generation as "modest," adding that he hoped it would be possible to sell enough standards in the future to cover most costs, thereby minimizing the Standards Program's need for support from dues income. Supporting Mr. Easton's estimation of the importance of standards to IEEE, General Manager Schulke noted that "if there is to be an effective level of standards activity, it must be funded at least at the current level."

A major metric breakthrough has been achieved by the publication of "ASTM/IEEE Standard Metric Practice," jointly sponsored by IEEE and the American Society for Testing and Materials. The joint publication represents the culmination of more than a year of negotiations between the societies at the urging of the American National Standards Institute. Accordingly, it is hoped by IEEE that this effort will represent the cornerstone of a national standard of metric practice. Copies are available from both Societies at \$4.00 each. For IEEE, order IEEE Std. 268-1976.

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TAB NEWS

Sales taxes: Has the Treasurer of your Group or Society been paying them? He, or she, should be--a consequence of IEEE's voluntary change in tax status from a 501(C)3 to a 501(C)6 to accommodate the Institute's involvement in the professional arena.

Reminder: see the green TAB insert, pp. 2M-2N, for important announcements.

USAB NEWS

New goals, new faces, and renewed dedication to member needs characterize USAB in 1976. Described as "results-oriented," the USAB program has targeted five major goals: improvement in financial and economic benefits for members; improved career conditions and opportunities; enhanced professional status; better Government relations and other interfaces; and improved communication of USAB aims, activities, and accomplishments.

A synergistic combination of volunteers and professional staff has been created to implement these goals. On the volunteer side are Division IV Director Robert Rivers, in charge of Advance Planning; Region 6 Director Carleton Bayless, responsible for Project Planning; Senior Past President John Guarrera, Project Implementation; Executive Vice President Robert Cotellessa, Project Evaluation; Joel Snyder, Controller; and Hans Cherney, Vice Chairman. Chairman of USAB is James H. Mulligan, Jr., Vice President of Professional Activities.

As for the professional staff, two new members--Dorothy L. Bomberger and Leo C. Fanning--have joined Staff Director Len Farrell's team. Mrs. Bomberger brings to USAB considerable management, administrative, and training experience, applied most recently in her capacity as consultant to the Committee on Minorities in Engineering of the National Assembly of Engineering and in her work directing the Census Use

Study's Technology Transfer Program at the U.S. Bureau of Census. Mr. Fanning's career has spanned positions in education, public health, and management. He comes to IEEE from a private, nonprofit community-based organization serving the handicapped where he was director. He has also served as head of the American Occupational Therapy Association and, before that, as a manager in the health services division of the Westinghouse Learning Corp. and as Peace Corps Director in El Salvador.

Members of the USAB team more familiar to EE's readers are Joseph Casey, John Kinn, and Ralph Clark. Volunteers, consultants, and staff, together, should provide the impetus for a vital, fruitful IEEE professional program.

Among 26 specific tasks USAB has assigned itself, two involve the dissemination of IEEE's Code of Ethics and Joint Society Employment Guidelines Guidelines (see ivory inserts, pp. 2C-2G) to the Institute's members and their employers. A third is described on p. 2H.

RAB NEWS

Section officers, the Institute would appreciate your help in remedying a present dearth of membership renewals in the Associate Member, and Senior Member grades. Senior Staff Director Charles Stewart reports that, through the first quarter of 1976, the membership renewals among students and recent graduates have been numerous. Also meeting projections have been new Member and Student member elections. But higher-grade renewals are currently running about 15,000 below projections. An arrears list is being mailed to each Section as this issue goes to press; the IEEE Membership Development Committee requests all Sections to make a special effort to contact these members and encourage them to renew. Remember, your Section's membership effort is reflected in its annual rebate.

Centerfold inserts

Gray--Revised Headquarters structure	2A, 2B
Ivory--Employment guidelines	2C, 2D, 2E, 2F
Ivory--Code of Ethics	2G
Ivory--USAB SCORE project	2H
Canary--ELECTRO/76 program	2I, 2J
Pink--IEEE short courses	2K, 2L
Green--TAB on long range planning	2M
Green--Exhibit sales policy	2N