

IEEE Student 3 Newsletter

Volume 5
February 1977



Advance In Engineering

Enter the IEEE Student Paper Contest

See Your Student Branch Counselor for More Information

"When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science." These words, attributed to Lord Kelvin (1824-1907) should make us all think about our need to express ourselves effectively.

Although Lord Kelvin was referring to the traits required for a good 19th century researcher in physics and chemistry, his remarks can well be applied to the communicative skills needed by the 20th century engineer. When an engineer can articulate his thoughts, then that engineer is on the road to fulfilling his function to mankind. But when the engineer lacks the communicative skills to convey his ideas in a comprehensible manner, then he is useless to mankind. If the knowledge of the technically-trained engineer cannot be harnessed to benefit mankind, then it is useless. Thoughts left uncovered due to a lack of effective communication skills has scarcely advanced to the stage of true engineering.

Many engineers currently graduating from college possess only mediocre communication skills. Those graduating engineers capable of effective expression are classified as gifted and unique. However, with a fair amount of work and practice, all engineering students can acquire the "talent" of effective communication. Many opportunities exist for the engineering student to practice and exercise these skills; the IEEE Student Paper Contest

is one such opportunity. Aside from the chance to win cash prizes, and have your paper published, your participation in the Paper Contest exposes you to the sources of good communications skills; sources from which you can extract knowledge for your personal benefit.

As you've undoubtedly been informed, your entry into the Paper Contest need not necessarily consist of concepts in the forefront of technology. Your entry could cover a simple engineering project you undertook. In fact, many of the entries into the Paper Contest have been based on reports covering the work of an individual or a senior or junior project. Whether you are aware or not, you could already have a potential paper contest prize winner in the class project report you're planning to submit for course work.

Give the idea of active participation in the Student Paper Contest serious consideration. Even though the development of a prize-winning paper requires much work, you might already be well down the road toward a top entry. Of utmost importance, keep in mind the fact that you will be gaining valuable experience in effective communications skills, skills acquired only through work and practice. Submit an entry into your Student Paper Contest and advance to the stage of engineering excellence; don't remain in the realm of obscure expression!

-- Stephen J. Malyszko
SAC Member-at-Large

Student Papers Published

"IEEE 1976 Student Papers" will soon be distributed free-of-charge to Student Branch libraries. Your Branch will enjoy having a copy of this collection of winning papers from IEEE's 10 Regional Paper Contests. The "Papers" can give you first-hand examples of papers judged to be the best in the Institute for your use as a reference or for your reading pleasure. They can also be an excellent means of stimulating Student interest in the Paper Contest.

Among the twenty-seven papers are "A Mini-computer Color Graphic Display," "Solid State Firing Circuit for a Three Phase Six Pulse Bridge Converter," "A Hybrid Laser and Gas Catheter for Endoscopic Photocoagulation," "The Design of a Multichannel Transmitter for the Monitoring of Temperature Data," "An Ultrasonic Rat Control System," "A Remote Controlled Power Sequence for Lighting Displays," and "Design and Construction of a Radio Facsimile System Used with National Oceanic and Atmospheric Administration." Covering a broad range of topics, these and other papers will provide exciting reading.

If you haven't ordered your Branch copy, contact Judy Rundle at Headquarters for full details. Personal and extra copies are also available for a nominal charge of \$8.00 each.

Spectrum Highlights

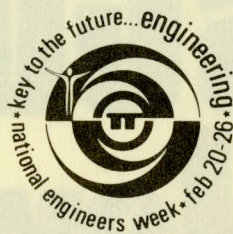
Did you know that central computer control has been aiding the Federal Republic of Germany in managing its street and highway vehicular traffic? Constrained by narrow city streets and squares that were incompatible with modern traffic systems, German traffic engineers were forced early to make use of available traffic surfaces to best advantage, the key to which were refinements in existing traffic-control systems. Spectrum is planning to highlight these problems and solutions found by German engineers in its March issue. Other projected articles include "A Look at the Space Shuttle," "Micros in Communications," and "Gallium-Arsenide Digital IC's". Read about all this, and other

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issues of a technical and professional nature, in the March issue of Spectrum.

Engineers' Week



"Key to the Future ... Engineering" is the theme of the 26th Annual Engineers' Week slated to be held February 20 - 26. This year's theme was chosen to bring into focus the important role that engineers play in American progress. As John F. Kennedy said during the 1962 National Engineers' Week:

"We would not be able to meet the challenges of the modern world were it not for the trained engineers who develop and build the products and systems that contribute to the welfare, safety, and advancement of all Americans. Our engineering capabilities are crucial, not only to the progress of the United States, but to helping others achieve their hopes for a better and fuller life in freedom."

The week of George Washington's birthday is traditionally observed as National Engineers' Week because the first U.S. President was himself a land surveyor and a designer of roads and fortifications. The purpose behind the observance is to familiarize the public with the work of engineers and to honor outstanding members of the profession. During the Week there will be a multitude of activities involving thousands of professional engineers in industry, government, construction, private practice, and education.

Engineers' Week is sponsored by the National Society of Professional Engineers. NSPE is a 70,000-member organization. They have 61 student chapters on campuses around the United States. Many of these chapters will be organizing special activities such as competitions, workshops, seminars, tours, fairs, films, and luncheons during the week. If you want to join with NSPE and celebrate a week devoted especially to your profession, NSPE will be happy to help. Contact: Department of Public Relations, NSPE, 2029 K Street, N.W., Washington, D.C. 20006.

Program Ideas

Casino Night

In need of a money-making project? Consider sponsoring a "Casino Night" fund-raising project. Many student members can become involved in the gala event. In addition, it can provide strength, cohesiveness, and publicity for your Student Branch. For further information and help with the necessary planning contact the Editor at IEEE Headquarters. If you have had a successful Casino Night, please write and tell us about it.



"Tell A Viking"

With the two Viking spacecrafts probing Mars in search of life, interest in the missions continues to grow. Harness that interest for an exciting Branch meeting program! Now you can bring the Viking venture directly into your meeting through a Viking Telelecture.

The Viking Telelecture consists of a slide presentation plus a telephone hookup to a Viking Project Officer who provides background information and answers your questions directly. Arranged on an individual basis, the telelecture can place emphasis on a particular theme of special interest to your group. The Telelecture is suitable for groups of 15 to 600 people. Time devoted to the presentation is approximately 45 minutes with an additional 15 minutes set aside for a question and answer session. You will need a 35 mm slide projector, a speaker phone, and a suitable PA system for a large group. Interested? Contact Mr. Leonard David, Forum for the Advancement of Students in Science and Technology, Inc. (FASST), 1785 Massachusetts Avenue, NW, Washington, D.C. 20036.

Specialized Chapters

Despite the old proverb that a specialist is one that knows everything about nothing, some IEEE students are now finding newly created Student Branch Chapters very much to their liking. These Chapters, encouraged by IEEE's Groups and Societies, are technical units of various Branches and work to promote activities which complement those of the Student Branches with which they are associated.

At present, a small number of Computer Society Student Chapters throughout the Institute have been taking advantage of the Distinguished Visitors Program of that Society. This program sponsors speakers on a wide variety of technical topics (primarily computer-related). Professor George Davida, Department of Electrical Engineering, University of Wisconsin, Madison, Wisconsin 53201, (414) 963-5192 is in charge of authorizing requests for speakers and can provide information on the program.

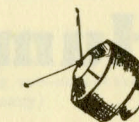
Other Chapters organize one-day tutorials on current topics of interest. Recently microprocessors have proven to be a topic of great interest to members of Computer Society Student Chapters as well as to other members of the Student Branch who are not members of the Student Chapter. Often the Chapters have been able to obtain free literature and speakers from the microprocessor manufacturers.

And, of course, the Student Chapters work with Branches and stimulate involvement in such activities as the Bendix Award, the Student Paper Competition, and in co-sponsoring meetings and other social functions.

In our next issue we will give you more details on our existing Student Chapters and their activities. Interested students may ask Judy Rundle at IEEE Headquarters for information about the creation of new Chapters.

-- Dr. Oscar N. Garcia
Chapter advisor, University of South Florida and SAC member

Satellite Pics



Would you like a space photo of Hometown USA, or any other part of the world for that matter? Images of Earth as "seen" by the multi-spectral sensors aboard Landsat 1 and 2 are available for anyone in the world to buy in a variety of formats and sizes. A source from which to secure details and price lists is:

User Services Unit
Earth Resources Observation Systems (EROS)
Data Center
Sioux Falls, South Dakota 57198

The Winners' Circle

Bendix Awards Made

Eight Student Branch teams submitting quality project proposals have won the 1976 Bendix Competition. Beginning in 1965, IEEE has administered this competition which is funded by the Bendix Corporation. Grants of up to \$500 each are made to fund projects which will contribute to the professional development of IEEE Student members and the strength of the Student Branch program. This year \$3,130 in grants were made to the following Student Branch teams:

University of North Dakota for "Non-Invasive Cardiac Rate Monitor"

Colorado State University for "Design and Construction of a Printed Circuit Board Facility"

University of Detroit for "Digital ECG Arrhythmic Monitor"

Drexel University, Day Division for "A Speech Processing System for Isolated Word Recognition"

University of South Florida for "Micro-processor Evaluation System"

Youngstown State University for "Micro-processor - Based Pattern Recognition as Applied to Track Event Timing"

University of Akron for "DATA-NET"

University of Wyoming for "Design and Construction of a Two-Way Communication System for Video and Audio Signals Over a Fiber Optic Transmission Line"

"Human Race #2" Ends

The second annual "Human Race," the IEEE Student membership contest, came to a glorious finish on January 1. Ten Student Branches will receive prizes for helping us bring the total Student membership to an all-time high of 25,385! Our winning Branches prevailed in one of two categories: (a) largest percentage increase in membership; or, (b) largest absolute increase in membership. The winners are ...

For Largest Percentage Increase

	% Increase
1. Mackenzie University (Brazil)	610
2. County College of Morris (New Jersey)	250
3. Red River Community College (Canada)	247
4. University of Saskatchewan (Canada)	210
5. Radio College of Canada (Canada)	208

For Largest Absolute Increase

	No. of New Members
1. Texas A&M University (Texas)	92
2. Pennsylvania State University (Pennsylvania)	78
3. Virginia Polytechnic Institute (Virginia)	65
4. University of Missouri at Rolla (Missouri)	65
5. Brigham Young University (Utah)	63

Career and Life Planning

In our two previous articles in this series on Career-Life Planning, we outlined the first two important steps that must be taken before a person is ready to take a third step; these were developing perceptive self-knowledge and clearly defined life goals. In this article, some thoughts concerning the vital third step of the planning process, developing a plan of action, and performing it effectively are presented. The essential question of this article is "How can I ensure that my plans result in real accomplishment not just idle-dreaming or wishful thinking?" As you will see, the answer is that plans must be purposeful, organized, and based on accurate information. This article, beginning on the next page, will help you develop such a plan.

Career Planning for Students

III. Developing Your Plan -
Building Commitment for Action
and Accomplishment

Goals Versus Objectives

In planning your career and life, it is necessary to draw a clear distinction between a *goal* and an *objective*. To many people, these terms are virtually synonymous. However, in my view, we must distinguish between the overall purpose, mission, and direction of something, the *goal*, and the specific results you desire within a given operating period in attempting to fulfill that purpose or mission, the *objective*. Let me illustrate this point. Most communities have some sort of Commission which is responsible for parks and recreation. The mission and goals statement of the Commission might include the following: to make available a wide range of facilities and leisure activities for community residents, ensure these are convenient, safe and enjoyable, and protect the natural environment. Such a goal statement is obviously broad and general yet quite essential in distinguishing the parks and recreation department from another commission's. In an effort to fulfill or achieve the mission, however, specific *objectives* would be established such as the following: by the end of the fiscal year to have completed the development of an 18-hole golf course, to have installed special pathways for the handicapped in at least one park in each region, or to have established a program of guided nature walks for children. Each of these objectives states a result to be achieved and is related to larger goals and purposes, otherwise it would be devoid of meaning and value. Thus a goal connotes purpose while an objective states a specific result in consonance with a goal. Plans become purposeful by ensuring that (a) there are specific results (objectives) desired at the end of a given period of time; and (b) these objectives support and, to a measurable extent, fulfill an overall goal.

Okay. Buy why split hairs? I don't think we are splitting hairs. In Career and Life Planning seminars, it is very common to encounter those who confuse goals and objectives. For example, some know the degree (B.S.E.E.) they are seeking by a certain date (they have an objective), but they are unable to relate it to their goals or purpose in life. By the same token, there are others who feel a sense of purpose by wanting to clean

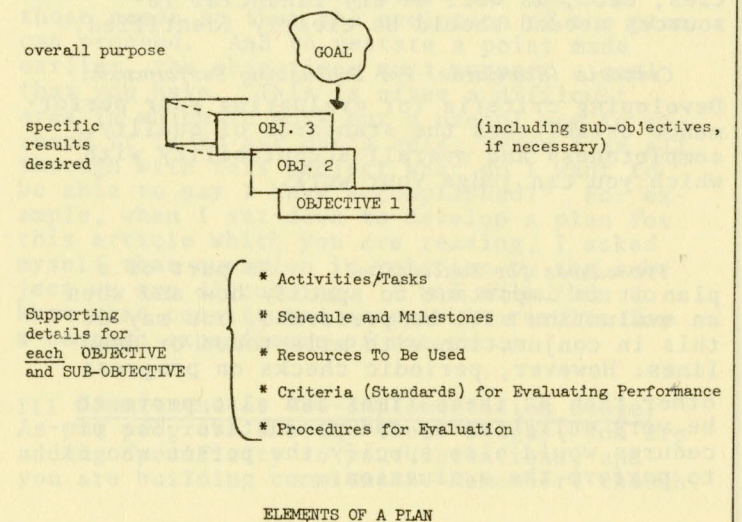
up the environment, promote racial justice, or reduce violent crimes; yet they are unable to establish objectives for themselves consistent with such goals.

A Plan: Essential Elements and Characteristics

The second article in this series on Career and Life Planning entitled, *Goal-Setting* presented ideas and suggested exercises to help a person clarify his life goals. Presented here is a discussion on establishing specific objectives that support such goals, and evolving a plan of action to reach those objectives. It is instructive first to examine what exactly a plan is.

A plan is a pre-determined course of action to achieve a result. It is a description of what a person wants to accomplish at some point in the future (an objective) together with an understanding of the means needed to achieve the objective. It is best prepared in written form so that details are not overlooked and the quality of the plan and its results can be judged through post-evaluation.

Assuming a goal has been established, the figure below shows the essential elements of a plan. These include: a set of objectives, and for each objective, the activities to be performed, a schedule and list of milestones, a description of resources to be used, a set of criteria for evaluation of performance, and a description of procedures for carrying out the evaluation.



ELEMENTS OF A PLAN

A Discussion of the Elements of a Plan

The Set of Objectives. These are the specific and measurable results desired by the end of the performance period. A useful guide in writing objectives is Robert Mager's Preparing Instructional Objectives (second edition, Fearon, 1975).

Activities. For each objective, the activities or work to be done to achieve that objective must be specified. It is important to note that, whereas objectives point to results (at a fixed point in time), activities require time. For example, if my objective were to have developed, before Easter, a resource file of leading research and development companies in the metropolitan Washington, D.C. area, including names of responsible executives, a description of the companies' areas of specialty, and their relative size and sales volume, then the activities I would need to perform would include researching the Boards of Trade and Chambers of Commerce of the local counties and cities, performing library research for corporate data, reviewing annual reports for stockholders, compiling and cataloging the data, and more. It should be noted that if an objective were too complicated and the activities too complex to enumerate, it would be advisable to break the objective down into sub-objectives and develop the activities and tasks accordingly.

Schedule and Milestones. Time must be allocated to each activity or task and milestones (or deadlines) built into the plan to help ensure its overall soundness and effectiveness. The schedule of work must also account for the proper sequencing of the activities.

Resources To Be Used. It is important to ascertain, specifically, all the resources that will be used in performing activities and achieving objectives. Key people, organizations, books, guides, equipment, facilities, etc., as well as any financial resources needed should be clearly identified.

Criteria (Standards) For Evaluating Performance. Developing criteria for evaluating your performance establishes the standards of quality, completeness and overall acceptability with which you can judge your work.

Procedures for Evaluation. As part of a plan it is important to specify how and when an evaluation will be performed. You may do this in conjunction with milestones or deadlines. However, periodic checks on progress other than at these times can also prove to be very enlightening and productive. The procedures would also specify the person who is to perform the evaluation.

In addition to the elements of a plan, we can identify a few characteristics which provide further insight. Corporate executives are fond of the idea of differentiating plans on the basis of time, that is, developing long-range, intermediate, and short-range plans. It should be understood that there can be no pre-specified time span which distinguishes a long-range from a short-range plan. The nature of the work planned dictates what Peter Drucker calls the 'futuraity' of the plan's effectiveness, that is, the time span over which the plan will be effective and relevant. There must be consistency between the goal and objectives and the activities and resources necessary to achieve them. In Drucker's words,

"There are plans which lead to action today - and they are true plans, true strategic decisions. And there are plans that talk about action tomorrow - they are dreams, if not pretexts for nonthinking, nonplanning, nondoing. The essence of planning is to make decisions with knowledge of their futurity. It is their futuraity that determines the time spans, and not vice versa." (Page 127, Management: Tasks, Practices and Responsibilities, Harper and Row, New York, 1974).

Another important characteristic of a good plan is that it be flexible and viewed as a guideline for change. Many people think of a plan as something rigid and binding - a sort of straightjacket on one's activities. All it is and can be is a rational approach to achieve an objective given an understanding of pertinent factors about one's self and one's environment. When something occurs to alter that understanding or cause a shift in priorities, then you must be flexible and adaptable enough to review and modify your plan accordingly. A well-developed plan usually won't require wholesale abandonment, merely revisions and updates.

Stages of Plan Development

Four stages in the development of a plan can be identified. These include an informational stage, a formative stage, a commitment or pre-implementation stage, and, finally, an implementation and control stage. I include this last stage in the overall development process because it provides further development, refinements and modifications in a plan based on feedback from performance. Further discussion of this stage will be presented in our next article; for now, we will describe some of the detailed steps in each of the first three stages.

I. The Informational Stage. A good plan of action is based upon reliable information

about one's self, the particular problem area, and the individuals, programs, and organizations actively performing in that area. Therefore, included at this stage are such informational elements as:

Knowing yourself which means having an accurate understanding of your skills, abilities, interests, talents, and values. There were several exercises suggested in our first article, Your Skills and Personal Qualities - Keys to Finding Fulfilling Work and Building Your Career, (October, 1976 Student Newsletter), designed to help you develop these very important data yourself.

Identifying and understanding your goals and purposes, or, in the vernacular, "Do You Know Where You are Going To?" The suggested exercise from our second article on Goal-Setting (December, 1976 Student Newsletter) will enable you to clarify and become more explicit about your current goals in life.

Researching information and surveying the field is essential to good planning. You must get out in the field and meet people who share your interests, concerns, and visions for the future. As you reflect on the things that need changing or doing in our society and what you would like to achieve, you can then identify a list of organizations, groups, agencies, programs and individuals who share your feelings. Also you can identify key reference and reading materials which provide vital insights into problems and issues. I cannot over-state the value of performing this type of field research to the soundness and quality of your plan. The data generated in such reviews and interviews are not to be found in textbooks, they are the current views of practitioners. The best reference to follow on organizing and conducting field research is Where Do I Go From Here With My Life? by Crystal and Bolles (Seabury Press, 1974). At Washington International College, where students have an active role in planning their curriculum, we require that they conduct a field research program to learn first-hand the skills and the competencies they will need to be effective, as well as the insights and recommendations of practicing professionals. In order to become proficient in this type of research, remember that you must have a genuine interest or you will be wasting everyone's time including your own. I would like to point out that a valuable by-product of this field research is that it is precisely what you need to break into what is popularly described as "the hidden job-market."

Reviewing and evaluating data. The data and information generated from study and field research must be analyzed and reviewed. Questions which arise need to be addressed. In this way a person can take fuller advantage of

the fruits of his field research for his planning and overall understanding of the area or subject under study.

II The Formative Stage. This is a crucial stage in the development process because it enables you to focus on your personal needs and your objectives and to better ensure the relevance of the plan itself to your own personal life. Of course, thoughtful reflection on goals would have preceded this step in the process.

Analyzing personal needs. At this stage in the planning process, your question becomes, "What do I need to be able to accomplish what I want?" Of course, we can only speak in generalities here since needs are determined by one's goals and such additional information as the current level of your skills and competencies, the requirements of society, your own personal preferences, etc. However, it is possible to suggest that, based on your goals, you could determine the additional knowledge, skills, and experiences needed in order to continue your growth. One of the most productive ways to do this is in conjunction with the field research mentioned above. In addition, your needs are determined by preferences of income level, fringe benefits, geographic location, organizational environment, and type of work desired. To evaluate all of the above, it is wise to draw up a list of 'musts', that are absolute requirements for your life, as well as a list of 'wants', which are strongly preferred but not essential. In Career and Life Planning Workshops, an analysis of needs as described above enables students to design relevant activities into their plans.

Establishing specific objectives/assured results. In a very real sense this area of establishing objectives is the culmination of the work conducted under the informational stage, including the field research. You must also take into account the needs you have determined and then set priorities for meeting those needs so that the evolution of the plan can proceed. And to restate a point made earlier, the objectives must support a goal that you have. This is often a difficult area in which to work but a useful way to approach it is to ask one's self, "when I am all through with this project what do I want to be able to say I have accomplished?" For example, when I sat down to develop a plan for this article which you are reading, I asked myself that question in relation to the subject we are discussing. I was able then to know what constituted acceptable results for a certain expenditure of resources.

III Commitment or Pre-Implementation Stage. As you progress through these stages, you are adding specificity to your intentions, and you are building commitment. Remember, though,

that there can be no accomplishment without action. Therefore this stage includes the following:

Developing and Assessing Alternative Approaches. Basically, once objectives have been established, different approaches can be designed to achieve them. Cost- and time-effectiveness could be the determining factors and these, no doubt, would have been included under the analysis of needs, as appropriate. The various alternatives must be weighed against how effective they will be in achieving the objectives and satisfying the needs identified. An excellent reference on this subject is by C. Kepner and B. Tregoe entitled The Rational Manager (McGraw-Hill, 1965).

Deciding/Developing Full Details of the Plan. In the end, you must make a choice as to the best approach. The details of the plan must then be fully completed in terms of the activities, schedule and milestones, resources to be used, criteria and standards for evaluating performance, and procedures for evaluation. In this manner, you are assured of having a plan of action which is purposeful, organized, based on accurate information and ready for implementation with full commitment.

Suggested Exercises

1. For the next thirty days, make a deliberate effort to manage your time more effectively. You may want to purchase an inexpensive book on the subject of time management such as Alan Lakein's How To Get Control of Your Time and Your Life (Signet, 1973). For the first ten days, keep a log on how you spend your time. Next, establish daily and weekly objectives and plan your time so as to accomplish these objectives. Evaluate your performance each day and consciously practice this art. You may wish to consult your book for helpful hints on time-wasters and how to avoid them.

2. Choose an important project or course you're working on at present and briefly analyze it in the following terms:

- What is your goal in relation to this project or course?
- What specific objectives are you working to achieve?
- What needs have you identified that this project or course is expected to meet?
- Are the resources you are using adequate to meet your objectives?
- What criteria have you established for performance evaluation?
- What changes can you make now to ensure more effective performance in this project or course? Answer fully.

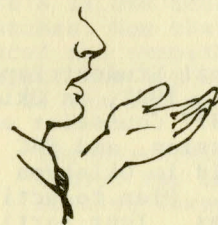
3. Beg, borrow or buy a copy of Where Do I Go From Here With My Life? by Crystal and Bolles and perform the Practices Field Survey as explained in Appendix E, Pages 187 to 196. This should provide a thorough introduction to the field research work needed for effective plan development.

4. Review the results of your work on your skills and personal qualities. Also review the statements you prepared on your life goals and desired accomplishments. (See Suggested Exercises from Articles 1 and 2 in the IEEE Student Newsletter October and December 1976 issues). Next, perform the following: (a) Organize and conduct a field research campaign as described above so that you can gather current information from qualified practitioners. Be sure to identify people and organizations working in your area of interest or on the problems you feel need solving; or perhaps you have an upcoming project or course that could serve as your focal point. (b) In conjunction with this field research and in light of your goals, analyze your needs in terms of skills you need to develop, experiences you need to have, and information you need to acquire. (c) Establish and write a set of objectives you would like to achieve, say by the end of the school year, which take into account the needs you have identified; (d) following the stages outlined in the article, develop your plan for achieving these objectives. Specifically describe the activities, schedule and milestones, resources, criteria for evaluating performance, and procedures for conducting the evaluation.

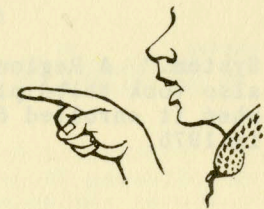
Suggested Further Reading

- Malcolm Knowles, Self-Directed Learning, Association Press, New York, 1975.
- Louis A. Allen, The Management Profession, McGraw-Hill, New York, 1964.
- Peter F. Drucker, Management - Tasks, Responsibilities and Practices, Harper and Row, New York, 1974.
- Harold G. Kaufman, Editor, Career Management: A Guide to Combatting Obsolescence, IEEE Press, New York, 1975.
- Lowell H. Hattery, "Planning For Achieving Goals", in The Management Library, Leadership Resources, Inc., Falls Church, Virginia, 1972.
- Ted Engstrom and R. Alec Mackensie, Managing Your Time, Zondervan Books, Grand Rapids, 1967.

--Dr. John G. Picarelli, Dean
Washington International College
Member, IEEE Student Activities
Committee



Regional Soundoff



Several of IEEE's seven Regional Student Representatives have written to your editor to "sound-off" on activities in their respective Regions; their reports follow. We know that you like to know what other IEEE Student Members are up to and they like to hear about you. Therefore, we welcome contributions from all Student Members, Branches, and IEEE organizational units. Write and let us know what you're doing.

Region 1

"Beyond the Genius of Invention" will be the theme for the second annual Region 1 Student Conference to be held April 21, 22, and 23 at Stevens Institute of Technology in Hoboken, New Jersey. Among the conference highlights will be the Regional Student Paper Contest and the return of "The Great Catapult Contest". For the unfortunates who missed out on last year's Catapult Contest, the object is to design an energy efficient device to project a plastic golf ball the greatest distance along a straight line. The major rule change from last year's contest will be greater energy availability. Special seminars and guest speakers are slated to help students become entrepreneurs--demonstrating how to patent and market your engineering ideas. Other conference events will include a microprocessor short course, luncheons, socials and a Branch Counselor-Chairman meeting. The conference is ideally timed to allow students to visit the Regional Conference, ELECTRO, held in New York City on April 19, 20, and 21, and take in the hundreds of electronics exhibits there. To get yourself and your Student Branch in on this exciting conference, write for more details to:

Paul Bonomo
Stevens Institute of Technology
Box S-127
Castle Point Station
Hoboken, New Jersey 07030

Region 1 is also boasting about its winning school, County College of Morris, in the "Human Race #2." This school took a second prize for an absolute increase in membership of 250%!

-- Paul Bonomo

Region 2

Region 2 has "branched out" and welcomed into its fold a Student Branch at Delaware Technical and Community College and a Student

Branch Chapter at the University of Pennsylvania. We are also pleased that four "older" Branches have won IEEE competitions: Drexel University, Day Division, Youngstown State University, and the University of Akron, in the Bendix Award Competition and Penn State for its second place in the IEEE Student Membership Contest.

A two-day conference for Region 2 Student Branch Chairpersons and Counselors is being organized for this spring. Student Branch executives from the entire Middle Atlantic area will be invited to the University of Pittsburgh area to attend a leadership development workshop, the annual Student Paper Contest, a career-planning session, and many (fun!) social activities.

Have any questions, unusual problems, or exciting successes? Write to me, Stan Murzenski, your Region 2 Student Representative at:

237 Main Street
Duryea, Pennsylvania 18642

-- Stan Murzenski

Region 3

Region 3 is busy planning a student conference in Williamsburg, Virginia. Scheduled to be held April 4, 5, and 6, the conference will coincide with the annual professional convention, SOUTHEASTCON. The student conference planners anticipate an attendance of 200 engineering students and advisors from all over the southeastern section of the United States. Events will include a "Welcome Social," the Region 3 Student Paper Contest, and Industry information Workshop, a Student-Counselor meeting, and a "rap" breakfast. Planned also is a workshop on a topic of current interest, "Career and Life Planning for Students." Interested Region 3 IEEE Student Members may contact the conference chairperson, Sally Charalambous at:

Old Dominion University
Department of Electrical Engineering
Norfolk, Virginia 23508

Region 3 is also proud to announce that it had a Bendix Award winner in 1976. We congratulate the joint Branch/Chapter team at the University of South Florida for submitting its proposal on a "Microprocessor Evaluation

System." A Region 3 school, Virginia Polytech also took third place in the "Human Race #2" when it enrolled 65 new IEEE Student Members in 1976.

-- Sally Charalambous

Region 4

Brrr!! It's cold here in Region 4! But that has not stopped our hardy hard-working Students from winning not one, but two, Vincent Bendix awards. Congratulations to the Universities of North Dakota and Detroit.

Announcing the possibility of a student conference to be held in the Windy City.... Chicago, Illinois... An exciting time will be had by seeing the industrial displays, speakers on state-of-the-art subjects, and getting to know the other Students of Region 4. Get started now organizing transportation--cars, trucks, airplanes, buses, tricycles, camel caravans, dogsleds--all to converge in Chicago (Fall, 1977) for MIDCON/1977 Student Conference.

-- Mary O'Brien



Region 5

The Student Activities of Region 5 are reaching new heights in the 1976 - 1977 school year. Many of the Student Branches have indicated positive commitments to providing activities and programs beneficial to the development of the Student's professional growth. Region 5 is particularly proud of the achievements of the Student Branch Chairmen and Counselors at Colorado State University and the University of Wyoming. The hard work of the Students and Counselors produced Bendix Awards of \$500 for Colorado State University and \$300 for the University of Wyoming. In addition, a note of commendation is extended to the teams of Students and Counselors at Rice University and Southern Methodist University for having also submitted Bendix proposals. Region 5 holds its head high because of its record of hard work by its Student Branches.

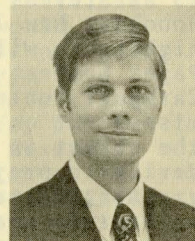
Plans for future Student activities in Region 5 are underway. The hosts for the 1977 Student Paper Contests have been selected: Area A--University of Southern Colorado, Area B--Wichita State University, Area C--Texas

Tech University. The Regional Student Paper Contest will be held April 7, 1977, in Oklahoma City, Oklahoma. The 1977 Counselor and Branch Chairman training session, and SAC meeting will likewise be held in Oklahoma City on April 7 and 8, 1977. Plan to actively participate in these programs. Your participation benefits YOU.

Two more points deserve mentioning. If your Student Branch is in need of a dynamite affair involving wide-spread interest, participation, enthusiasm, and funds, then consider sponsoring a design contest. Look for details in the upcoming Region 5 Newsletter. Also make sure your Annual Branch Reports are completed and mailed if you've not done so already. Let's combine our efforts and become the first Region to ever achieve 100 percent returns with the Annual Branch Report.

-- Steve Malyszko

SAC News



John B. Gordon, staff research engineer at the University of Texas's Center for Energy Studies, has been named Chairman of the Student Activities Committee (SAC) for 1977.

John isn't new to Student Activities--in fact, while an undergraduate studying at the University of Texas he was the IEEE Student Branch Chairman. Under John's direction, the University of Texas Student Branch became the largest Student Branch in the Institute! Hard-working John was a Region 5 Student Paper Contest finalist also. After graduation, he went to work for Westinghouse Electric as a sales engineer in the Water Reactor Division and then on to the new public service information organization, Americans for Energy Independence.

Mr. Gordon is a former Section Student Activities Committee Chairman from the Pittsburgh Section. For the past two years, he has been a member-at-large on the Institute Student Activities Committee.

The IEEE Student Activities Committee, which John will chair, is responsible for all policy and program-development for the Insti-

tute's 25,000 Students and 440 Student Branches. Now that you know you have an experienced and sympathetic ear on the SAC, why not contact him and let him know your ideas. John can be reached at:

The University of Texas at Austin
Center for Energy Studies, EMS 327
Austin, Texas 78712

Also willing to listen are the following Regional Student Activities Committee Chairmen and Regional Student Representatives to SAC:

Regional SAC Chairmen

Region 1
Professor Jagdish Gajjar
Union College
Dept. of Electrical Eng.
Schenectady, New York 12308
518-370-6273

Region 2
Professor Donald Talhelm
Lehigh University
Dept. of Electrical Eng.
Bethlehem, Pennsylvania 18015
215-691-7000 ext. 396

Region 3
Professor Lyle Back
University of Kentucky
Dept. of Electrical Eng.
Lexington, Kentucky 40506
606-258-4684

Region 4
Mr. Eric Aupperle
University of Michigan
Merit Computer Network
The Cooley Building
Ann Arbor, Michigan 48109
313-764-9423

Region 5
Professor J. Eldon Steelman
New Mexico State University
Box 3-0
Las Cruces, New Mexico 88003
505-646-4111
505-646-3115

Region 6
Professor Byron Thinger
San Francisco State University
Engineering Division
1600 Holloway Avenue
San Francisco, California 94132
415-469-1174

Region 7
Professor Donald Roy
Nova Scotia Technical College

P.O. Box 1000
Halifax, Nova Scotia, Canada
902-429-8300 ext. 287

Region 8
Professor Jean Remy
Ecole Nationale Supérieure
des Telecommunications
46 rue Barrault
75 Paris 13, France

Region 9
Dr. Savu Crivat Savulescu
Escola de Engenharia de Sao
Carlos de Universidade de
Sao Paulo
Av. Carlos Botelho 1465
Sao Carlos SP 13560, Brazil

Region 10
Dr. S. Y. King
University of Hong Kong
Dept. of Electrical Eng.
Hong Kong, Yong Kong

Regional Student Representatives

Region 1
Mr. Michael Hachey
BARH C-104
Rensselaer Polytechnic Institute
Troy, New York 12181
518-270-7159

Region 2
Mr. Stanley Murzenski
237 Main Street
Duryea, Pennsylvania 18642
717-457-4302

Region 3
To be appointed. In the meantime, you should contact Professor Back.

Region 4
Ms Mary F. O'Brien
3493 O'Bryan Friley
Iowa State University
Ames, Iowa 50012
515-294-6008

Region 5
To be appointed. In the meantime, you should contact Professor Steelman.

Region 6
To be appointed. In the meantime, you should contact Professor Thinger.

Region 7
Ms Bandana Prasad
2969 Heatherington Cr
Apartment 502
Ottawa, Ontario, Canada K1V 9N2
613-998-9060

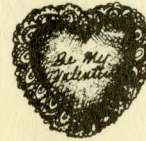
Thesis Awards for Graduate Students

Electronic Associates, Inc., a U.S. manufacturer and designer of analog/hybrid computers, is offering three cash prizes for future doctoral dissertations in the area of analog/hybrid computer technology. The prizes are \$2500 for first place, \$1500 for second, and \$1000 for third.

In order to be eligible, a candidate must submit a letter of endorsement from his or her university thesis advisor, together with a thesis proposal. The endorsing letter should outline the area of contribution of the thesis proposal, showing its relation to analog/hybrid technology, and, in particular, should make a reasoned judgment of the probable impact of the thesis on hybrid computer technology.

Are you interested in learning more? Dates and details are available from: Mr. Arthur I. Rubin, Manager, Scientific Computation, Electronic Associates, Inc., 185 Monmouth Parkway, West Long Branch, New Jersey 07764.

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