

10-1-1989

## Wright State University College of Engineering and Computer Science Bits and PCs newsletter, October 1989

Wright State University College of Engineering and Computer Science

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**Wright State  
University**

Dayton, Ohio 45435

# Bits & PCs

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## College of Engineering and Computer Science

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October 1989

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### This newsletter...

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is a monthly publication to inform students of the activities, news, opportunities and changes occurring in the College of Engineering and Computer Science. It reports on the achievements of faculty and students; changes in organization, policy and curriculum; scholarship and employment opportunities; and engineering and computer science student club activities. The newsletter is published by the College of Engineering and Computer Science and distributed to all engineering and computer science majors through their student mailboxes. Submit items to be included in the November issue to the College of Engineering and Computer Science office, 130 Engineering and Mathematical Science Building, by November 3rd. The next issue will be published November 16th. Welcome back to a new and exciting academic year. Keep in touch through your college newsletter. We welcome YOUR bits and pieces.

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### Order of the Engineer Ring Ceremony

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The next induction ceremony for the Order of the Engineer will take place on Friday, December 1, 1989. All engineering students who plan to graduate in December 89 or March 90 are eligible to join. **REGISTRATION DEADLINE IS NOVEMBER 3.** For more information, contact Teri Shepherd in the college office.

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### Winter Quarter Registration

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Winter quarter registration begins on November 6, 1989. Each of our departments will hold an Advising Day during that same day with open hours for registration. Check with your department office or advisor for more information. Register Early!!

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### Attention Future Entrepreneurs

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Juniors and Seniors!!!

Have you ever considered starting your own business? Many opportunities exist for engineers and computer scientists to be entrepreneurs. Most engineers and computer scientists have not been exposed to this way of thinking about their career, but it can be a challenging and financially rewarding alternative to forty years of working for someone else.

Dean Brandeberry and Assistant Dean Beck are teaching a course to expose you to successful entrepreneurs, and the things you need to know to be successful in starting your own business. The one credit hour course will be offered during winter quarter as EGR-499-06, titled "Starting Your Own Business". It will meet Monday evenings from 4:30-6:30 P.M. in room 116 Health Sciences Building.

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### \$\$\$ Attention EE, CS, and CEG Majors

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DON'T MISS OUT ON THIS OPPORTUNITY to win an NCR personal computer. The College of Engineering and Computer Science has been selected as an NCR-University Stakeholder Partner. As a result of this selection, during the 1989-90 school year, students in the college are eligible to participate in a program sponsored by NCR that will award over \$15,000 in computer equipment. The goal of the program is to identify and honor students and faculty who will contribute to the economic well-being of this country. Through this program, yearly NCR Innovation Awards in the form of an NCR personal computer are presented to an outstanding undergraduate and graduate student as well as a faculty member in the college. The awards are presented for innovations in the areas of electrical engineering, computer engineering or computer science. This spring a computer and \$500 worth of software will be presented to two undergraduate students, one graduate student and two faculty members. For more information contact the Chair of the Department of Computer Science and Engineering, Dr. Alastair McAulay or Dr. Belle Sheno, Chair, Department of Electrical Engineering. The cut-off date for consideration for this award is April 1, 1990.

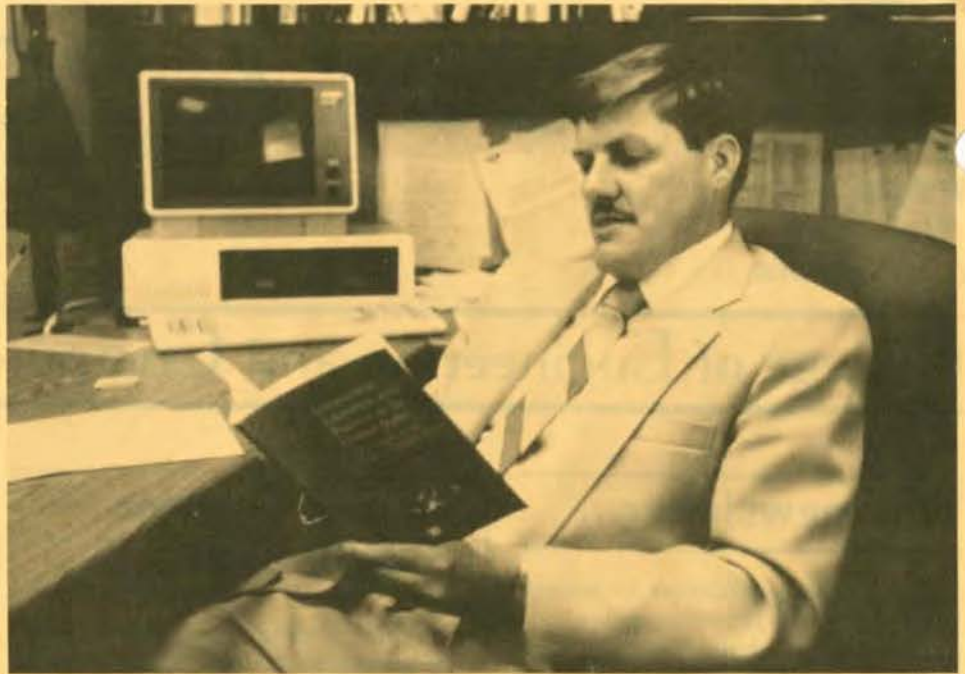
## Dean Brandeberry Makes the Grade

When asked why he decided to take the time to become registered by the State of Ohio as a professional engineer, Dr. Brandeberry replied, "It is important to support the move in our country toward registering engineers in order to elevate their professional status."

In addition to this, the dean feels that we are becoming more and more a legalistic society with liability problems that will require the practicing engineer to prove, through the passing of a standardized examination, that he or she is qualified to work in the engineering profession. Also, as our country continues to broaden its scope of interest and moves into the international scene, the dean feels "it will become increasingly necessary for engineers to adhere to a more strict set of standards and guidelines."

Dean Brandeberry has strong feelings about the importance of registration for professional engineers; therefore, he made time in his busy schedule to take both the Engineering in Training (EIT) and Professional Engineer (PE) examinations in Columbus this summer. At the time he received his undergraduate degree, the importance of registration was not stressed, but Dr. Brandeberry is convinced that it is easier to start this process during the senior year, when students have a good understanding of the curriculum.

Preparation for the examination consisted of reviewing the material available from the National Council of Engineering Examiners. Each examination is eight hours in duration. Dr. Brandeberry took the first test on



*Dean Brandeberry, P.E., believes in the importance of registration for engineers.*

a Friday, and spent the night in Columbus so he would be ready for the 8 am exam which was given the next day. Five hundred applicants participated in each of these tests. The dean received notification recently that he had successfully passed both examinations and is now registered as a professional engineer in the state of Ohio. Dr. Brandeberry was awarded a certificate on September 25th at the Dayton Engineers Club.

Dean Brandeberry, P.E., believes that both today's engineer and the engineering profession will benefit greatly as more and more engineers join the ranks of the Professional Engineer. As we head toward the twenty-first century, the importance of science and engineering in today's

high tech world cannot be underestimated or overemphasized. It is the dean's hope that the effort he made to acquire his registration will help emphasize the importance the College of Engineering and Computer Science places on the Professional Engineer.

(For more information on how you can become a Professional Engineer, see the HOW TO article in this issue)

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**EGR 499-05 (3 cr. hrs.) Engineering Fundamentals**  
**Winter Quarter 1990**  
**Tuesday, Thursday 4:10-5:25 pm**  
**162 Rike Hall**

# How to become Registered as a Professional Engineer

The registration to become a professional engineer is a legal process and is subject to the intricacies of law. The three components of the requirements are (1) education, (2) experience, and, (3) examination. The steps for registration are as follows:

1. Bachelor's degree in engineering from an ABET approved program.
2. Eight hour open-book examination in the "Fundamentals of Engineering", leading to the interim designation of "Engineer-in-Training" (E.I.T.). (A senior in an ABET approved engineering program is eligible to take the "Fundamentals" examination in Ohio, during the last semester of the senior year).
3. Four years of responsible engineering practice beyond the bachelor's degree.
4. Eight hour open-book examination in the "Principles and Practices of Engineering".
5. Successful completion of the foregoing steps, plus the payment of nominal fees leads to registration as a Professional Engineer (P.E.).

In Ohio, the process of registration for engineers (including forms and information) is administered by:

The State Board of Registration for Professional Engineers & Surveyors  
77 S. High Street, 16th Floor  
Columbus, Ohio 43266-0314  
Telephone: 614/466-3650

The two examinations ("Fundamentals" and "Practices") are given twice each year on consecutive days, in Columbus. "Practices" is given on Friday and "Fundamentals" on Saturday. The future schedule is as follows:

	"Practices"	"Fundamentals"
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Spring 1990	Apr. 20	Apr. 21
Fall 1990	Oct. 26	Oct. 27
Spring 1991	Apr. 12	Apr. 13

In addition, the spring "Fundamentals" exam is also given on several college campuses, including Wright State University, primarily for the convenience of engineering seniors. This examination is scheduled for spring quarter on Saturday, April 21st, 1990 on our campus.

(Students only) applications must be filed by February 21st, 1990, for the examination. Also, student's applications must contain a letter signed by the WSU Board Representative, Clark Beck.

All other applicants must file ninety days prior to the exam date and include an OFFICIAL transcript indicating degree and date granted.

In preparation for the examination, the following steps are advisable:

1. Obtain an application packet from the State Board or the Dean's Office. This will contain an application blank, filing deadlines, examination dates, and other information including a summary of the topics to be covered by the examination.

This packet also includes an order form describing some optional review materials that are available from the National Council of Engineering Examiners (NCEE).

2. Submit an application to the State Board. A \$40 fee must accompany the application for the Fundamentals of Engineering Exam.
3. Review and identify reference materials to be taken to the examination.
4. Prepare yourself psychologically for an eight hour fast-paced open-book examination.

For those who want to pursue a formal review for the engineering examinations, several institutions offer review courses.

At WSU, the College of Engineering and Computer Science regularly offers a 3 quarter hours credit review course, EGR 499 "Engineering Fundamentals", during the winter quarter. The schedule for 1990 is Tuesday and Thursday, 4:10-5:25 pm.

The following quotation is from a National Society of Professional Engineers (NSPE) pamphlet, "Why Success-Oriented Engineers Join NSPE":

Why is NSPE important to you? Consider the impact of professional issues on your own career—issues such as engineers' salaries, employment practices, engineering education, registration and ethics to name just a few. Consider, too, important public policy issues at all levels of government and the legislation and regulations affecting those issues. These are the concerns that touch our daily lives, shape our careers, and mold our profession itself. Moreover, NSPE is the only engineering society devoted wholly to addressing these important issues—at national, state and local levels.

A member of the National Society of Professional Engineers (NSPE) is also a member of a state society such as the Ohio Society of Professional Engineers (OSPE) and a member of a local chapter such as the Dayton Society of Professional Engineers (DSPE). The professional society is also organized into practice divisions to deal with concerns from the viewpoint of the area of practice:

1. Professional Engineers in Industry (PEI)
2. Professional Engineers in Construction (PEC)
3. Professional Engineers in Private Practice (PEPP)
4. Professional Engineers in Education (PEE)
5. Professional Engineers in Government (PEG)

The ideal time to take the Fundamentals in Engineering (EIT) examination is during the senior year while the material is still fresh. Take the time. At WSU, the representative of the Ohio State Board of Registration for Professional Engineers is:

Clark Beck, P.E.  
Assistant Dean  
College of Engineering and  
Computer Science  
Wright State University  
Dayton, Ohio 45435  
Telephone 513/873-2403

## College Club Fair

Don't miss the Annual Club Fair!

The college is sponsoring its second annual Club Fair on Friday, October 27th, 1989 from 10 am until 3 pm in the lobby of the EMS Building.

You will have the opportunity to learn about each of our twelve student organizations by visiting their display areas.

Our college clubs/societies include:

- Association for Computing Machinery (ACM)
- American Institute for Aeronautics and Astronautics (AIAA)
- American Society for Metals (ASM)
- American Society of Mechanical Engineers (ASME)
- Biomedical Engineering Society (BMES)
- Human Factors Society (HFS)
- Institute of Electrical and Electronics Engineers (IEEE)
- National Society of Black Engineers (NSBE)
- Ohio Society of Professional Engineers (OSPE)
- Society of Automotive Engineers (SAE)
- Society of Women Engineers (SWE)
- Tau Beta Omega (Honor Society)

In addition to the above, representatives from Student Government and the Society of American Military Engineers (SAME) will also be on hand.

The clubs will again be competing for cash prizes, and in addition there will be refreshments, door prizes, and a famous WSU celebrity. All students who join a club during the fair will be eligible to win a bookstore gift certificate in a drawing to be held after the fair. Check with Teri Shepherd (130 EMS) for detailed information.

Get involved—Become a Member!

## Call for Student Papers

The Engineers Club of Dayton and The Engineers Club of Dayton Foundation announce the 1990 student paper program. A \$200 cash award and a one-year membership in the Engineers Club of Dayton will be presented to the authors of the winning undergraduate paper and the winning graduate paper. The faculty advisor for each winner will also receive a one-year membership in the Engineers Club of Dayton. Students at engineering/technology degree granting institutions in the greater Dayton area are eligible to enter. Winning authors will be invited to present their papers to the Engineers Club membership. The winning papers and selected runner-up papers may be published in *The Engineer*.

Five (5) copies of each paper must be received for review by *March 30th, 1990*.

### RULES

1. The paper may be *based* on the student's Ph.D. dissertation, MS thesis, senior design project, independent study project, etc. It may be a review or tutorial and need not involve original work. It should be prepared solely for this competition and not be co-authored or previously submitted as a paper.
2. Paper should be no more than 9 double-spaced typed pages. (Longer papers will not be considered). In addition, a *one page synopsis* of the paper should be provided.
3. Paper should be prepared in a style suitable for publication in a technical journal (IEEE, ASME, etc).
4. Paper should be written for a general engineering audience. It should present the topic in an interesting, informative and generally understandable manner. A reader should *not* have to be an expert or specialist in the subject matter presented to understand the paper content.
5. Authors should provide a brief, one page resume which includes student status (U.G., Grad, co-op, part-time, etc.), academic major, faculty advisor, permanent address and phone where student can be reached, and a statement releasing the paper for publication and presentation.
6. Paper judging criteria are: a) written in an *interesting* manner; b) written in an *informative* manner; c) *understandable* by a general engineering audience; d) written in a style suitable for technical journal publication.
7. Oral presentation may include additional information not contained in the paper.
8. To be eligible, an author must be currently a student or have graduated after June 1, 1989. The paper must have been written while the author was a student.

Send five copies of the paper to:

Clark E. Beck, P.E., Vice-President  
Engineers Club of Dayton  
110 East Monument Avenue  
Dayton, Ohio 45402

## BITS & PCs

College of Engineering and Computer Science



**Wright State  
University**

Dr. James E. Brandeberry, Dean  
Teri Shepherd, Editor  
Sharon Coates, Assistant Editor and  
Staff Writer

Submit questions, articles and ideas to Editor, 130 EMS. The College of Engineering and Computer Science reserves the right to edit all material for publication.

## Visions Unlimited Showcase

This fall, Wright State University began a celebration of its first twenty-five years. "A Dream Fulfilled, A Vision Unlimited" is the theme that will identify this celebration with a series of events, lectures, artist series, open houses, and other special events. The culmination of this celebration will occur on June 9, 1990, with commencement.

One of the events that occurred in September was the Visions Unlimited Showcase. The College of Engineering and Computer Science displayed a collage of pictures and artifacts dating from 1967 to 1989 depicting the growth of the college. Also on hand was a life-size version of the typical engineering student of the 60's, in the person of our own Assistant Dean Dick Rathbun.

Also on display were examples of research that is currently being conducted at the college. Providing displays were Dr. Amir Faghri, Heat



*Assistant Dean Rathbun, complete with beany (and propeller), lettered sweater, horn-rimmed glasses, pipe and slide rule was on hand to greet visitors and answer questions pertaining to our college.*

Pipes: Dr. Raymond Siferd, Very Large Scale Integrated (VLSI) Circuits; Dr. Blair Rowley, Augmentative Communication; Dr. Kuldip

Rattan, Robotics; Dr. Alastair McAulay, Artificial Intelligence; Dr. Isaac Weiss, High-Temperature Materials.

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## It's a Date!

- OCT. 24—United Nations Day  
27—COLLEGE CLUB FAIR  
31—Halloween
- NOV. 6—ADVISING DAY  
(Winter 90 registration begins)  
9—Last day to drop a class with a grade of "W"  
10—Veterans Day  
University Closed  
23—Thanksgiving Holiday  
24—University Closed  
25—No Classes
- DEC. 1—ORDER OF THE ENGINEER RING CEREMONY

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## Scholarship Programming Contest

The 1989 East Central Scholastic Programming Contest will be held at Wright State University November 3-4. Team members are needed for the programming team. Sixty teams from six states will be competing. If you are interested in trying out for the team, or in helping with the contest, please contact Nancy Thibeault, Department of Computer Science and Engineering, room 488 Fawcett.

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## Writing Workshops

The University Writing Center will offer a series of writing workshops during the fall quarter. Look for reminders about these workshops in the *University Times* and in the *Campus Calendar*. Anyone interested in more information should contact the Writing Center in room 025 Library, or call ext. 4186. These workshops cover essay exams, grammar, sentence structure, punctuation, nonsexist language and many other areas.

## EE Department Policy

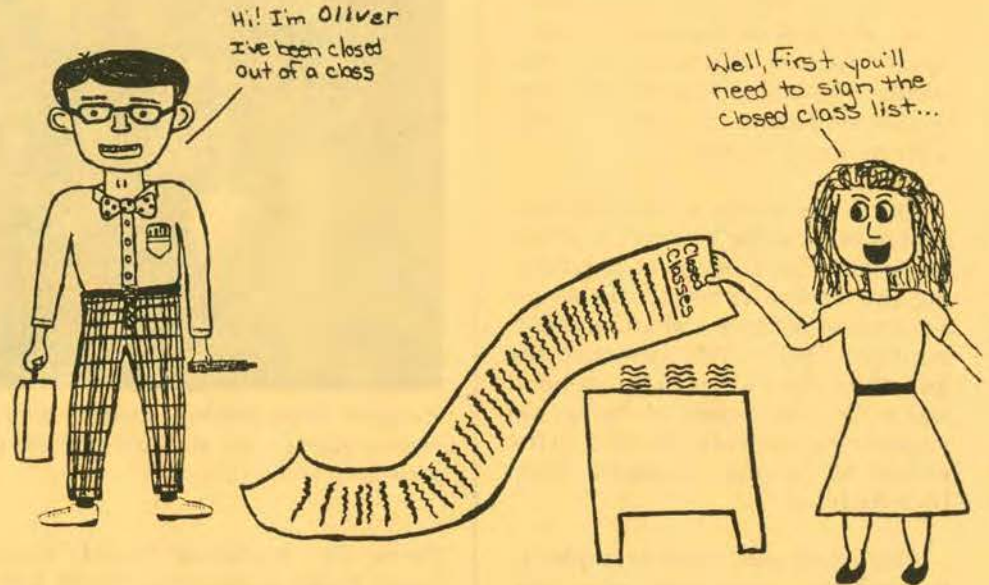
The Department of Electrical Engineering announces again that it is the responsibility of the student to make sure that he/she is registered in an EE course only if he/she has a passing grade of D or higher in each of the prerequisite courses. The department will enforce this policy more strictly than it has in the past, and will cancel the enrollment of any student right up to the last week of the quarter, if he/she violates this policy.

If the student receives an F, W, X or I in a course which is a prerequisite for a course he/she has registered to take the next quarter, this course must be cancelled as soon as possible.

The EE department again reminds the students that they should plan their registration well in advance of the advising day by consulting with their advisors and registering early. If they are closed out of any classes, they should come to the department office in 134 Fawcett immediately and put their name on a waiting list. Efforts will be made to admit them on a "first come, first served" basis.

## OLIVER'S ORDEALS

by Lauren Roe



## College Promotes National Engineers Week

We are moving ahead at a rapid pace to make our celebration of National Engineers Week one of the highlights of this school year. This event will be held the week of February 19th, 1990, and will be bigger and better than ever before. Everything from our open house, which will take place on February 19th, to our sponsorship of the JETS/TEAMS competition on February 22nd, will provide us with an opportunity to interact with the community and area high schools. Throughout the entire week, there will be many activities designed to promote interests in engineering and computer science at

Wright State University. Among these events is the Second Annual Rubber Band Powered Airplane Contest, scheduled for February 20th, and a Programming Contest, which is a new event. The Society of Women Engineers (SWE) will also be sponsoring a reception during this week. Junior and senior engineering students who are interested in volunteering to help with any of these activities should contact Teri Shepherd in the college office, (130 EMS), or call 873-2403.

## The Computer is Watching You

Yes it is—and what it is checking is to make sure that students have met the admission requirements to the college *before* they attempt to register for 300 level courses. It is more important than ever to complete the composition, calculus, chemistry/physics and programming course requirements as early as possible.

The academic policy of the college states that students will not be permitted to enroll in 300 level and higher courses unless they have completed the core course requirements with C's or better and have a 2.25 GPA. This policy has been in effect since May 1987, and will be strictly enforced beginning winter 1990. Please contact your adviser if you have any questions.

## 1989 Winners

The results of the 1989 Engineers Club Student Technical Paper Competition have been announced. Wright State University was well represented in this competition, and the top prize in the undergraduate category was awarded to Rosemary Speers, senior in the Department of Biomedical and Human Factors Engineering, for a paper entitled "Acceptable Dose Levels for Public Exposure to Radiation." Rosemary was awarded a \$200 cash prize and a one year membership to The Engineers Club of Dayton. Her faculty advisor, Dr. Thomas Hangartner, also received a one year membership to The Engineers Club of Dayton.

Jeffrey Bayer, from the Department of Electrical Engineering, was the recipient of the second place award in the undergraduate category. A second place award in the graduate category went to Jae C. Oh, Department of Computer Science and Engineering.

Congratulations to each of these students for a job WELL DONE.



*Rosemary Speers, winner of the 1989 Engineer-Club Student Technical Paper Competition. Rosemary receives a cash prize and a (1) one year membership in the Engineers Club of Dayton.*

See the article "Call for Student Papers" for information on entering the 1990 Engineers Club Student Technical Paper Competition.

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## New Degree Titles and Diplomas

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The Ohio Board of Regents has approved changes in the following undergraduate degree titles:

FROM: Systems Engineering,  
Electrical Option  
TO: Electrical Engineering  
FROM: Systems Engineering,  
Mechanical Option  
TO: Mechanical Engineering

The Registrar has been given authority to place the new degree titles (majors) on transcripts issued to graduates beginning August 1989.

In the past, the diplomas issued to our undergraduate engineering and computer science graduates contained the following degree titles:

Bachelor of Arts  
Bachelor of Science  
Bachelor of Science in Engineering  
Bachelor of Science in Computer Engineering

Beginning August, 1989, these degree titles were replaced by the following:

Bachelor of Arts in Computer Science  
Bachelor of Science in Computer Science  
Bachelor of Science in Biomedical Engineering

Bachelor of Science in Computer Engineering  
Bachelor of Science in Electrical Engineering  
Bachelor of Science in Engineering Physics  
Bachelor of Science in Human Factors Engineering  
Bachelor of Science in Mechanical Engineering  
Bachelor of Science in Materials Science and Engineering



# We Made It Nationally

Dr. Anthony Cacioppo and Dr. Richard Koubek, of the Department of Biomedical and Human Factors Engineering, had the distinction of having one of their questions selected and used in the 1989 National TEAMS Test. This test is given to high school students during the TEAMS competition. The question appeared in the area of human factors engineering. Here it is:

**GIVEN:** In a nationally known corporation which manufactures automobile components, workers complain that machine noise is so bad they are unable to talk to each other. The employees claim the inability to communicate is sufficiently severe that it affects both safety and productivity. You are invited to determine whether the complaint is valid.

A number of techniques have been developed to assess the impact of noise on speech communications. The articulation index (AI) is a commonly used technique. The AI is based on the computation of a weighted sum of the differences between sound level pressure for noise and speech for various frequency bands. (Sound level pressure is measured by an instrument which displays the pressure in decibels).

FIGURE 1 plots the frequencies and decibel level readings for human speech and the factory background noise. The curve for background noise represents data which you collected using a sound level pressure meter. The curve for the idealized human male voice is derived from a review of the technical literature.

TABLE 1 lists weights associated with given frequencies in articulation index computation.

TABLE 2 shows the relationship between the computed AI indices and the ratings of satisfaction. For example, should your computation result in an index of 0.4, you can conclude that the noise level is acceptable and that communication among workers is possible.

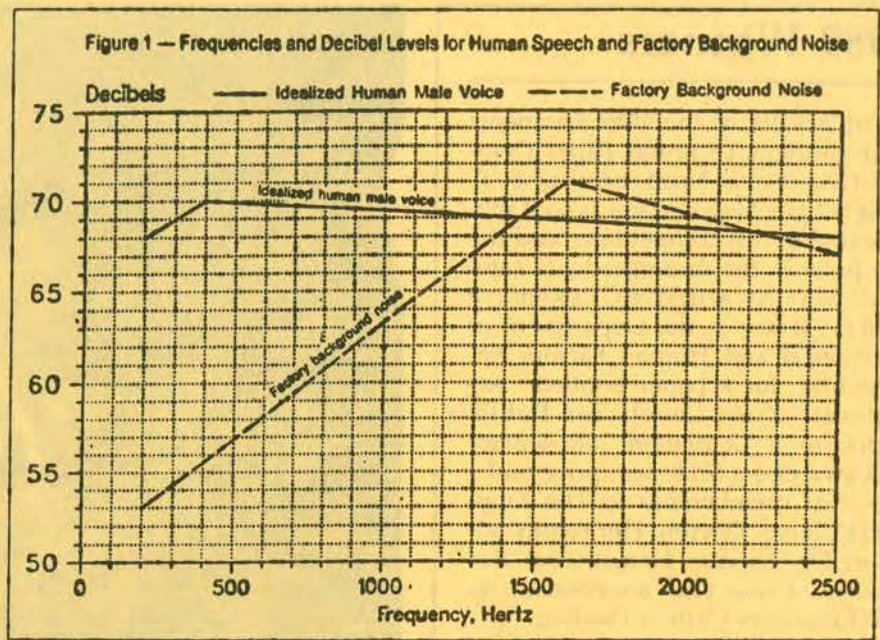


TABLE 1: Articulation Index Frequencies and Weights

FREQUENCY	WEIGHT
200	0.0004
250	0.0010
315	0.0010
400	0.0014
500	0.0014
630	0.0020
800	0.0020
1000	0.0024
1250	0.0030
1600	0.0037
2000	0.0038
2500	0.0034

TABLE 2: Relationship Between Articulation Index and Rating of Satisfaction

AI VALUE	RATING OF SATISFACTION
<0.3	Unsatisfactory
0.3 — 0.499	Acceptable
0.5 — 0.7	Good
>0.7	Excellent

**REQUIRED:** Advise your client that the ability of the worker to use speech for communication is one of the following:

- a) Unsatisfactory \_\_\_\_\_
- b) Acceptable \_\_\_\_\_
- c) Good \_\_\_\_\_
- d) Excellent \_\_\_\_\_

Look for the answer in next month's BITS and PCs, and thank you for sharing this with us Dr. C.

# Scholarship Information

## American Association of University Women Fellowship

The AAUW Educational Foundation seeks to encourage more women to pursue advanced studies in science and technology through annual fellowships to women graduate students in engineering. Fellowship awards are available for Ph.D. candidates in the final year of dissertation research and for master's candidates in their final year of study. The fellowships in engineering are awarded to women who are citizens or permanent residents of the United States with high academic records and outstanding professional promise.

For more information, contact Teri Shepherd in 130 EMS. APPLICATION DEADLINE: NOVEMBER 15, 1989.

## Equal Opportunity Publications Scholarship Program

We are pleased to announce the 1990 Equal Opportunity Publications Scholarship Program. Two \$500 non-renewable scholarships will be awarded to outstanding women, minority, or handicapped students who are pursuing a career in engineering.

Applicants must be enrolled in a full-time undergraduate program leading to a Bachelor's Degree in any engineering discipline at an accredited four-year college or university.

The preliminary selection procedure will be based solely on the applicant's cumulative GPA, as verified by an official transcript. The top students will be selected and will receive applications on or about April 1, 1990.

The final selection procedure will be based on: Cumulative GPA, participation in extracurricular activities, a personal statement, and a recommendation.

For more information and an application, contact Teri Shepherd in the college office in room 130 EMS.

APPLICATION DEADLINE: February 15, 1990.

## National Science Foundation Graduate Research Fellowships

The NSF plans to award approximately 150 new three-year Minority Graduate Fellowships in March 1990. The fellowships will be offered to individuals who have demonstrated ability and special aptitude for advanced training in science or engineering. Ten of these awards will be made for women in engineering to encourage women who are members of the designated minority groups to pursue advanced degrees.

The NSF Minority Graduate Fellowship Program is open only to applicants who are citizens or nationals of the United States at the time of application, and who are members of an ethnic minority group underrepresented in the advanced levels of the U.S. science and engineering personnel pool, i.e., American Indian, Black, Hispanic, Native Alaskan (Es-kimo or Aleut), or Native Pacific Islander (Polynesian or Micronesian). Persons who hold permanent resident status are not eligible to apply.

For more Information and Application Form, Contact Teri Shepherd, 130 EMS or Apply to:

The Fellowship Office, National Research Council  
2101 Constitution Avenue  
Washington, D.C. 20418

APPLICATION DEADLINE:  
November 9, 1989

## Science & Engineering Research Semester (SERS)

The U.S. Department of Energy (DOE) through the Office of Energy Research recently initiated a new academic-year program, the Science and Engineering Research Semester (SERS), at six national laboratories to help encourage undergraduates and recent graduates to pursue advanced degrees in the sciences and engineering. Individuals selected for the Argonne National Laboratory (ANL) program become members of research teams engaged in ongoing investigations employing state-of-the-art facilities and equipment.

To be eligible, a student should: be a college junior or senior; be a citizen of the U.S. or a permanent resident alien; and have an overall grade point average of approximately 3.0 or higher, based on A = 4.0.

During the appointment period, participants receive a stipend of \$200/week and complimentary housing or a housing allowance. Transportation expenses are reimbursed for one round trip between the participating lab and the participant's home or university for round trip distances greater than 100 miles. Personal auto reimbursement is at a rate of \$0.225/mile, with the total not to exceed coach-class airfare.

The fall application deadline is mid-March, 1990.

To obtain application materials:

Science and Engineering Research Semester  
U.S. Department of Energy  
Office of Energy Research, Room 3F-061  
Forrestal Building  
1000 Independence Avenue, SW  
Washington, D.C. 20585

# Faculty Facts

**Abdul Ahad S. Awwal (CSE)** had a paper entitled "Machine Parts Recognition Using Trinary Associative Memory", published in the May 1989 issue of *Optical Engineering*. The paper was co-authored by Mohammad A. Karim from the University of Dayton and Hua-Kuang Liv of Jet Propulsion Laboratory, in California.

**Chien-In Henry Chen (EE)** presented a paper entitled "An Efficient Approach to Pseudo-Exhaustive Test Generation for BIST Design", at the 1989 IEEE International Conference on Computer Design in Cambridge, Massachusetts, in October. This paper was published in the proceedings.

**Venu Dasigi (CSE)** had a paper entitled, "A Dual-Route Parsimonious Covering Model of Descriptive Text Interpretation," published in the proceedings of the international symposium Computational Intelligence '89, which was held in September at the University of Milano, Italy.

**David Fautheree, Instructor (CSE)** was the principal investigator and Dr. Venu Dasigi co-investigator on a three week short course, "Expert Systems for Practicing Scientists and Engineers," offered at the Center for Artificial Intelligence Applications. Other WSU faculty members who participated were Dr. Philip Chen (CSE) and Dr. Kevin Kirby (CSE).

**Marian Kazimierczuk (EE)** is credited with the following publications:

"Class E Zero-Voltage-Switching Rectifier with a Series Capacitor," IEEE Trans. Circuits System, vol. CAS-36, pp. 926-928, June 1989 (Co-author J. Jozwik).

"Power-Output Capability of Class E Amplifier at any Loaded Q and Switch Duty Cycle," IEEE Trans. Circuits System, vol. CAS-36, pp. 1142-1143, August 1989 (co-author K. Puczek).

"Class E dc/dc Converters with a Capacitive Impedance Inverter," IEEE Trans. Industrial Electronics, vol. IE-36, pp. 425-433, August 1989 (co-author X.T. Bui).

"Analysis and Design of Buck/Boost zero-Voltage-Switching Resonant dc/dc Converter," IEEE Proceedings, Pt. G, Circuits, Devices and Systems, vol. 136, pp. 157-166, August 1989.

"Class E Zero-Current-Switching Rectifier with a Series Inductor," in Proc. 32nd Midwest Symp. on Circuits and Systems, Urbana, IL, August 14-16, 1989 (co-author J. Jozwik).

"Class E Tuned Power Amplifier with an Antiparallel Diode or a Series Diode at Switch, with any Loaded Q and Switch Duty Cycle," IEEE Trans. Circuits System, vol. CAS-36, pp. 1201-1204, September 1989 (co-author K. Puczek).

**Kevin Kirby (CSE)** received funding in the amount of \$3,305 from the Center for Artificial Intelligence Applications for participating in the Center's "Neural Network Familiarization Workshop", a two-day course which ran October 5-6. Dr. Kirby is also presenting a paper entitled "Neural Networks: Modes of Misapprehension" as part of a panel discussion on "Fundamental Problems Remaining in Artificial Intelligence" at the Aerospace Applications of Artificial Intelligence Conference in Dayton, October 23rd. He is also a co-author, with CSE graduate student Nancy Day, of the paper "Connectivity and Continuity in Neural Sequential Associative Memory Architectures", presented at the Great Lakes computer Science Conference in Kalamazoo, MI, October 18th. Research on the latter paper was funded by Dr. Kirby's 1989-90 WSU Research Incentive Award, "Optimization by Neuronal Chaos."

**Alastair McAulay, Chair, (CSE)** was awarded a United States patent, U.S. 4,851,840 for an "Optical analog to digital converter" on July 25th, 1989.

Dr. McAulay also completed a final report for Phase 1 and Phase 2 of the contract for the Center for Artificial Intelligence Applications, "Polynomial neural network for airborne applications."

**T. K. Prasad (CSE)** presented two papers at the International Joint Conference on Artificial Intelligence—1989 held in Detroit, MI:

"On the Declarative Semantics of Inheritance Networks"

"An Evidence-Based Framework for a Theory of Inheritance"

**L. Rai Pujara (EE)** presented a paper entitled "On the Stability of Uncertain Polynomial with Dependent Coefficients" in June at the 1989 American Control Conference in Pittsburgh, PA. He also attended the 1989 NAECON Conference and presented a paper entitled "A Frequency Domain Design Technique for Multivariable Control Systems" (co-author M. Shabbarhussein). Dr. Pujara presented a paper (co-authored by M. Shabbarhussein) entitled "On the Robustness Bounds in Linear Control Systems Design" at the 1989 IEEE International Conference on Systems Engineering.

**Kuldip Rattan (EE)** co-authored (with Ron Solanki) a paper entitled "The Planar Workspace of the Merlin Manipulator" at the IEEE International Conference on System Engineering. He also co-authored an invited paper entitled "Flexible CIM Workstation for Advanced Manufacturing Applications" for this same August '89 conference.

Dr. Rattan was the co-author (with Vicent Feliu) of "Kinematics of a Three-Degree-of-Freedom, Two Links Lightweight Flexile Arm", presented at the 6th Symposium on Information Control Problems in Manufacturing Technology, held in September in Madrid, Spain.

# Career Services

## Cooperative Education Program

The following co-op experience report was written by Ty Olmstead, a third-year engineering physics major, after completion of his first assignment with Wright-Patterson AFB/WRDC/MLLN.

The general duties as a student engineering aide at WRDC/MLLN are numerous. Duties involved cutting specimens, polishing specimens, micrography, running thermal fatigue tests, digitizing data, analysis of data, drawing on the computer aided design system, writing procedures, library research and writing computer programs.

Specimen cutting involves a diamond saw, a micrometer, and a diamond wheel. First, the specimen has to be cut from a 4 × 4 inch tile. Once the specimen is cut, it has to be smoothed to within 0.001 inches across its length if it is going to be tested, or mounted if it is going to be polished. The smoothing is done with a diamond wheel which scrapes the sides of the specimen, wearing it down to specifications.

Micrography is the process of taking pictures of the microstructure of a specimen for the engineers to look at. They use this to see if the glass in the specimen has formed or not. Micrography itself is done with a microscope equipped with a camera. The specimen is photographed under different lenses, showing different views of the surface of the specimen exposed.

The next area I assisted in was running "Thermal Fatigue Test". This is done with a specimen that is cut for testing. To do this, you first had to program a "MicRicon" controller to monitor the heat on the specimen. Then, "Thermal Couples" were attached to the specimen with a ceramic paste. Once this was done, the test would start with a cure of the paste. Once the paste is cured, "Thermal Couples" are rechecked for attachment. Then, the actual test of thermal cycling begins.

Digitizing data was done by taping a graph on a digitizing board and taking a computer mouse along the curve of the graph. The computer would then record the points along the curve in basic computer language. This information would then be sent to the Vax system as a Fortran file. Once in the Vax system, the information on the curve could be plotted on an X-Y plotter.

The next area I assisted in was drawing on the computer system. I drew a set of photon lamps as well as many other things; some being a mechanical fatigue machine, strain gages, grips to the mechanical fatigue machine, and lab station set-ups. These drawings will be used for presentations and for new equipment.

Library research was also done. This was to find out what others were doing in the research field in which the engineers I worked with were looking into. It was also used to find out more data on composite material. By doing this, I also got to organize a literary search for articles, using a computer.

Another area I helped the engineers with was in the writing of procedures. This was done to minimize the time spent teaching someone how to do something in the future.

The last thing I did in the labs was to write computer programs in Fortran. One program I wrote checked the alignment of the fatigue machines while another program selected data points in an infile and wrote them to an outfile. In the future, I will be responsible for writing more programs.

This co-op experience at WRDC/MLLN has relieved my fear of laboratories. It has shown me that labs are not as I thought; thus, opening a new area to look into for future employment. The co-op experience has made me more sure in my career goals. Working has affected both personal values and my attitudes towards working. My personal values have raised and I feel more confident in the decisions I make. My attitudes have

changed also. I try harder to do things right the first time, so not to have to repeat things. I hope to gain more experience in the labs learning to use an electron microscope, run more thermal fatigue test of composites and various other lab apparatus.

Co-op experience is an excellent way to explore the many opportunities available to students in computer science and engineering, examine career possibilities, gain work experience, earn money for college expenses and begin your career before graduation. Sheila Suel, Assistant Director for Computer Science and Business Co-op, and Dianna Harris, Assistant Director for Engineering and Science Co-op, conduct group orientation sessions for students interested in finding out more about the program. Stop in Career Services at 126 Student Services to sign up.

## Career Services

A new name hangs above the door of University Placement Services—Career Services. The new name reflects the diversity of the office. That is, Career Services is comprised of two programs, Career Planning & Placement and Cooperative Education.

Here is a listing of the staff associated with the needs of the students and alumni within the College of Engineering and Computer Science.

### *Career Planning & Placement*

Susan Cox, Associate Director  
Leisa Howard, Placement Counselor

### *Cooperative Education*

Dianna Harris, Assistant Director  
(Engineering and Science)  
Sheila Suel, Assistant Director  
(Computer Science and Business)

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## Are You Registered to Succeed?

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In order to participate in the On-Campus Interviewing Program, you are required to register with Career Planning & Placement.

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## Job Search Workshops

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Career Planning & Placement is presenting a series of job search workshops prior to and during the Fall Quarter. These sessions are free and open to all who have interest in beginning or improving their job search.

All workshops take place in 126 SSW from 10 to 11 am. Stop in 126 SSW or call 873-2556 to sign up.

**Job-Search Publications**  
Available through Career Planning and Placement

**ACM Resume Book:** Due for release to employers in early spring, inclusion of your resume is easy if you are a member of ACM. Contact Lucy Garcia, club secretary.

**CPC Annual (Vol. 3):** A national guide to employment opportunities (\$1.00 fee).

**Graduating Engineer:** An essential monthly addition to your knowledge base of the opportunities this year (free).

Interviewing Guide (free)

Resume Writing Guide (free)

Contact info for local employment, a listing by major (for use in the Career Resources Center

### Looking for career-related experience?

Helpful suggestions for securing an internship are now available in the Career Planning and Placement Career-related Internship Guide. Pick up a copy in 126 SSW.

### Can't decide on your major or field within your major?

A guide to career planning is now available to students and alumni through Career Planning and Placement. Pick up your copy in 126 SSW

### New Videotapes in the Career Resources Center of Career Services

Avoiding the 10 Most Commonly Made Business Etiquette Faux Pas

How to Conduct Yourself More Professionally During a Business Meal

Dynamic Interviewing

Making Contacts: The Power of Networking

Negotiating Competitive Salaries and Benefits

Planning a Successful Job Hunt

The On-Campus Interview

Moving Up

Writing Resumes that Sell

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## Engineering Fundamentals Review

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**REMINDER!!!!** The course EGR 499-05 "Engineering Fundamentals" is offered once a year during WINTER QUARTER. It will be given Tuesday and Thursday from 4:10-5:25 pm. If you are considering taking the examination to become a Professional Engineer, you may wish to enroll in this course.

Also, the college office is taking orders for the study guide which is available to those taking the PE examination this spring. The cost is \$8.00 and they will be available on February 1, 1990. Contact Teri Shepherd, 130 EMS, to place your order.

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## Graduates Take First Step

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Twenty-two graduates from the March '89 and June '89 graduating classes earned passing grades on the Fundamentals of Engineering (FE) exam given in April. They have successfully completed the first step toward registration as professional engineers (P.E.). The next (FE) examination will be given on Saturday, April 21, 1990. Application packets are available in room 130 EMS. For more information contact: Clark Beck, P.E., Assistant Dean, College of Engineering and Computer Science. CONGRATULATIONS TO:

Leonard R. Bauer, Jr.  
David A. Beane  
Carol Sue Brunsman  
Charles W. Frayne, Jr.  
Gregory K. Kojola  
Stephen A. Mascarella  
Danny J. Mitchell  
Karl F. Seibert  
James A. Stebbins  
Heidi Jo Beck  
John C. Chatto  
Gregory P. Cole  
Mark E. Collins  
Kimberly Sue Crist  
Howard G. Kauffman  
Michael J. Leigh  
Angela R. Obert  
Teresa L. Pace  
Wallace C. Patterson  
Larry G. Skiles, Jr.  
Paul J. Studebaker  
William R. Wood

# Club Correspondence

## American Institute of Aeronautics and Astronautics (AIAA)

The AIAA is the club for you if you have any interest in the fields of aeronautics or astronautics. The AIAA is open to all majors in the engineering college. Who would think of designing a space station without a mechanical engineer to determine the stress and strain loads, or design a communications satellite without consulting with an electrical engineer? How about a human factors engineer for the design of a 747 cockpit, or a materials engineer for designing zero gravity metal alloys? All of these things are related to the aeronautical and aerospace field.

The WSU Branch of the AIAA held its first meeting of the 1989-90 school year on Friday, September 22nd, 1989. Matt Buchko was elected president and Joe Schmalhofer was elected secretary/treasurer. Our meetings will start on Fridays at 4:00 pm and go until all business has been covered. We do not meet every week unless necessary. Check the bulletin board in the EMS hall.

Events planned so far this year include the second annual Rubber Band Powered Airplane Contest and a trip to the Wright Patterson Air Force Base Museum. If you have any questions or would like to join, see Joe Schmalhofer in room 156 EMS.

## Association for Computing Machinery (ACM)

ACM's calendar is rather full this quarter with so many activities in which you can be involved. We would like to invite those of you interested in the computing field to attend our activities. If you are interested in becoming an ACM member, please fill out a WSU ACM registration form which is available in room 484 Fawcett Hall. We stress the fact that there are no WSU ACM chapter fees.

We would also like to thank those of you who have helped out with our fund raiser, disk sales. The general meeting was also a success. We would like to thank our speakers: Susan Cox, Dr. Larry Crum and Dr. Abdul Awwal.

We would like to invite anyone in the College of Engineering and Computer Science who is seeking either part-time or full-time employment to attend one of our ACM Resume Book Meetings. Students do not have to be members of ACM to submit resumes for this book. If you need more information, or cannot attend one of the meetings, drop us a note in the ACM mailbox in the Department of Computer Science and Engineering, 488 Fawcett.

### IMPORTANT DATES TO REMEMBER:

October 19 ACM Lectureship Series  
2 pm—room 339 Millett  
SPEAKER: Radia Perlman from DEC.  
TOPIC: "Local Area Network Interconnection"

October 25 ACM Resume Book Meeting  
10 am—room 132 Oelman

October 27 General WSU ACM Meeting  
1 pm—279 Millett

November 3-4 East Central Scholastic Programming Contest  
Library Annex Basement

## Human Factors Society (HFS)

The Human Factors Club is planning a tour of General Motors Truck and Bus Assembly Plant in November. The club will see the assembly process and hear one or two talks on the application of human factors to a manufacturing environment. Specific dates and times will be determined.

If you are interested in human factors and are not currently receiving human factors information in your mailbox, please contact Lisa Tidd, Box G127 or Anne Cook, Box F739.

Through the month of October, HFS will still be selling entertainment books. The books are \$30 each and quickly pay for themselves with the discounts and coupons they contain. They also make great Christmas gifts. Contact Robin Stern, Box K173 for details.

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## Ohio Society of Professional Engineers (OSPE)

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The WSU OSPE—would like to welcome everyone back to school! We hope that your fall quarter is going well. If you are not familiar with WSU OSPE, we invite you to become involved in our various activities this quarter to learn about what we can offer you as an engineering student. We are gearing up to be very active this quarter, and would like YOU to participate. Membership in our club will benefit you regardless of your engineering discipline.

### ACTIVITIES FOR THE FALL QUARTER:

- |            |   |
|------------|---|
| October 25 | ACM Resume Book Meeting<br>10 am—132 Oelman<br>Lucy Garcia for details                  |
| November 6 | OSPE-PEPP Presentation<br>2 pm—103 BioSci<br>Professional Engineers in Private Practice |

If you would like more information, please drop us a note in the OSPE mailbox in 130 EMS Building. More information can also be provided by the 1989-90 newly elected officers:

President	Lucy Garcia
Vice President	Peter O'Neill
Treasurer	Brian Ashcraft
Secretary	Kamran Iqbal

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## Student Government

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If you are interested in what Student Government is up to, be sure to stop by the Student Government table at the Club Fair, October 27th, 10 am-3 pm, EMS Lobby.

The next meeting of the Engineering and Computer Science Student Council will be held on Friday, November 3rd at 1 pm in room 033 UC. Refreshments will be provided.

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## Society of Women Engineers (SWE)

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Our members are combining their creative efforts and sense of fun to produce ear-resistables.

Ear-resistables are jewelry made from resistors and other electrical components. While most of our products at this point are earrings, we also have pins and tie tacks.

For a look at our products and prices, stop by 130 EMS and ask Teri Shepherd for our display of sample ear-resistables. Prices range from \$3.00 to \$5.00.

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**Prizes!**

**Displays!**

**Refreshments!**

**Fun!**

# CLUB FAIR '89

**Friday, October 27**

**10 am to 3 pm**

**EMS Lobby**

*Get Involved—Become a Member!*