



BITS & PCs

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

January 2001 Wright State University Dayton, Ohio 45435 Vol. 17 No. 4

Important Dates

- January 15
University Closed,
Martin Luther King, Jr.
Day
- January 18
Last day for 70% refund
of fees
- January 19
Last day to drop a class
without a record of "W"
- January 25
Co-Op Recruiting Day,
1:30-4:30 PM, Russ
Engineering Lobby
- February 2
Last day for all but
freshmen to drop a
class with a record of
"W"
- February 23
Last day for freshmen
to drop a class with a
record of "W"
- March 1
Last day to apply for
June graduation
- March 12
Last day of Winter
Quarter classes
- March 13-17
Final Exam Week
- March 26
First day of Spring
Quarter classes

EMCWA Renewed Scholarship Commitment

The Electrical Manufacturers and Coil Winding Association (EMCWA) renewed its scholarship commitment with WSU's College of Engineering and Computer Science with a \$16,000 gift. The EMCWA also donated \$2,000 towards the Electric Race Car program. These donations bring EMCWA's total donations since 1993 to \$118,000.

During the 2000-2001 academic year, ten students are benefiting from scholarships provided by EMCWA. This year's generous gift will provide another ten students with the opportunity to study electrical engineering during the 2001-2002 school year.

Wright State is one of eleven schools EMCWA supports each year with scholarship money, two of which are in Ohio.



Pictured above (l-r): Jim Fisher, President of Fisher Data Products and WSU Representative for EMCWA, presents Dean James Brandeberry with the check from EMCWA.

CECS Welcomes COLA Faculty

On December 6, 2000, Dean James Brandeberry and the College of Engineering and Computer Science welcomed the 20 faculty members from the College of Liberal Arts with a Welcome Reception. The COLA faculty members are staying in the Russ Engineering Center for approximately 18 months while Millett Hall is being remodeled.

All of the COLA faculty were moved into the building without a hitch thanks to Sue Sarnier, who organized the COLA end of the move, and Dick Rathbun, who was responsible for the CECS portion of the move. The faculty members with offices in the building are as follows:



- | | | |
|-------------------------|--------------------|---------------|
| Jennifer Alexander-Paul | Carol Engelhardt | Ed Melton |
| Martin Arbagi | Edward Fitzgerald | Carol Morgan |
| Marjorie Baker | Charles Funderburk | Kenji Oshiro |
| David Baxter | Donald Harreld | Tracy Snipe |
| Bela Bognar | Paul Lockhart | Robert Sumser |
| David Bogumil | Kenneth Lowrey | Roy Vice |
| Carl Brun | Laura Luehrmann | |

Welcome COLA Faculty

Visit us on the Web at <http://www.engineering.wright.edu>

New Faces Join CECS



Dr. Chester A. Harris is the new ITRI Interim Assistant Director. As Assistant Director, Dr. Harris' main efforts will be directed toward initiating, stimulating and developing partnerships between faculty and students at Wright State University and local industrial and governmental organizations. He will represent ITRI to local information technology industry and government, as well as similar organizations throughout the State of Ohio. Dr. Harris brings extensive experience in business development and software planning to ITRI. He received his Ph.D. in Industrial and Systems Engineering from The Ohio State University. Most recently he was Executive Vice President of Product Planning & Business Development at Gasper Corporation in Dayton, the leading provider of automatic teller machine (ATM) management software. Prior to that, he worked as Director of Marketing and Product Support for AT&T in New Jersey and then as Director of Business Planning for AT&T/NCR in Dayton. He is a registered Professional Engineer and a member of IEEE and IIE. In addition to his ITRI duties, Dr. Harris will be teaching CEG 211 — PC Networking II during Winter Quarter.



Keith Huck has joined the Computer Science and Engineering Department after 17 years working for the Department of Defense. Keith will be working as a Computer Research Support Scientist in the Department. He will be working with the Department faculty and will provide system administration and procurement support. Keith will also be a part-time instructor. He received his B.S. degree in Electrical Engineering from the University of Evansville in 1983 and his M.S. in Electrical Engineering with focus in Computer Engineering in 1987. Keith retired as a Major in the U.S. Air Force and is looking forward to working on his Ph.D.



The College of Engineering and Computer Science would also like to welcome Jenny Garringer as the new Publications and Events Coordinator. She is in charge of the publications for the College, which include the monthly BITS & PCs newsletter. Jenny is also responsible for all events sponsored by the College, including the CECS Awards Ceremony in June, Academic Advantage, and the annual Club Fair. She is a Senior in the Raj Sojn College of Business and will graduate with a B.S. degree in Marketing in August of 2001. Jenny can be found in the CECS Dean's Office, 405 Russ Engineering Center, and may be contacted by phone at (937) 775-5004 or via email at ygarring@cs.wright.edu.

College of Engineering and Computer Science

Open House

MONDAY, FEBRUARY 19, 2001

1:00 PM - 5:00 PM

RUSS ENGINEERING CENTER LOBBY

held in conjunction with

NATIONAL ENGINEERS WEEK

FEBRUARY 18-24, 2001

- ✓ Learn about our engineering and computer science programs
- ✓ Tour our state-of-the-art facilities and the campus
- ✓ Obtain information about admissions, financial aid, and cooperative education
- ✓ Receive a copy of our Employment Guarantee
- ✓ Hear a special presentation at 1 PM by WSU students: "Why Choose WSU"

For more information:

Phone: (937) 775-5001 Email: dean@engineering.wright.edu
or visit us on the web at <http://www.engineering.wright.edu>

SCHOLARSHIPS AND FELLOWSHIPS

The American Society of Mechanical Engineers (ASME) is accepting applications for its federal government fellowships for ASME members. The program allows candidates to spend one year in Washington, DC working with a staff of a congressional committee, U.S. Senator or a U.S. Representative. Candidates should have at least 5 years of professional experience, an advanced engineering degree, professional engineering registration, and public policy experience. For a more information, visit the ASME website at: <http://www.asme.org/gric>. Applications must be received by April 1, 2001.

The Association of State Dam Safety Officials is accepting applications for scholarships for the 2001-2002 academic year. Candidates must be U.S. citizens and enrolled at the junior or senior level in mechanical engineering and should be interested in pursuing a career in hydraulics, hydrology or geotechnical disciplines. Applicants must have a GPA of 3.0 and submit an essay describing future goals. For more information, visit the ASDSO's web site at: <http://www.damsafety.org>. Applications are available in 405 Russ and must be submitted by February 16, 2001.

The U.S. Navy is accepting applications for its Health Professions Scholarship Program. The Navy will pay 100% of the tuition at the medical school of the student's choice for all four years, reimburse each student for all required texts and instruments, supply each student with a doctor's bag, and supply a monthly stipend of \$1,020. Interested students are strongly encouraged to apply *BEFORE* receiving a letter of acceptance to medical school. For an application and more information, contact Patrick Wrencher, Head of Navy Health Care Officer Programs, Two Crowne Point Court, Suite 140, Cincinnati, Ohio, 45241 at 1-800-426-1627 ext. 15.

The Society of Women Engineers (SWE) is accepting applications for scholarships for the 2001-2002 school year. Each year SWE offers over 100 individual scholarship awards ranging from \$1,000 to over \$5,000 per year. Applicants are

only required to complete one application to be considered for all scholarships in which they are eligible. Applications are available in 405 Russ. The deadline for freshmen scholarships is May 15, 2001 and for sophomore, junior, senior and graduate scholarships is February 1, 2001.

The Ohio Board of Regents is offering undergraduate students fellowships to attend graduate/professional study at an Ohio institution. Fellowships provide \$3,500 each year for two years of full-time graduate study. To be eligible, a student must have earned a B.S. degree from an Ohio institution, plan to enroll in an Ohio graduate school, be a U.S. citizen, and be an Ohio resident. Applications and brochures are available in the School of Graduate Studies, 202 University Hall and must be submitted by February 5, 2001. For more information, contact Jerry Malicki at (937) 775-2976.

The National Aeronautics and Space Administration (NASA) is accepting applications for the NASA Undergraduate Student Research Program (NASA-USRP) which offers undergraduates mentored research experiences at nine participating NASA Centers during 2001. Applicants must be enrolled full-time and be of junior or senior status after Spring Quarter 2001. Applications must be received by January 26, 2001. For more information visit <http://education.nasa.gov/usrp>.

The U. S. Air Force is offering a free graduate education at the Air Force Institute of Technology. Candidates must apply for Officer Training School to be considered. For more information, contact Douglas Fields at (937) 427-3158.

The Ohio Space Grant Consortium is accepting applications for undergraduate and graduate scholarships. Scholarship amounts are as follow: Juniors – \$2,000; Seniors – \$3,000; Master – \$14,000; Doctoral – \$18,000. Applications packets are available from the college representative, Dr. Mitch Wolff, Department of Mechanical and Materials Engineering. The deadline for submitting applications is January 31, 2001.

e = ms(EGR)

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For more information, contact Rick Koubek, Department of Biomedical, Industrial, and Human Factors Engineering, at (937) 775-5044, or e-mail: rkoubek@cs.wright.edu.

www.humanfactors.wright.edu

Winter 2001 E*Courses

EGR 482 **Engineering Fundamentals**—
Preparation for Fundamentals of
Engineering Exam

EGR 702 **Systems Engineering**—
Analysis and design of complex
technological systems

HFE 699 **Statistics for Development
and Manufacturing**—Specific statisti-
cal tools for design and manufacturing



WRIGHT STATE
UNIVERSITY

***Are you interested in a co-op position for spring or summer quarter?
Then you should attend the...***

***Co-Op Recruiting Day 2001
for Engineering, Computer Science, and MIS Students***

Thursday, January 25, 2001

1:30 PM - 4:30 PM

Russ Engineering Lobby

Talk to employers about co-op, internship, and part-time employment opportunities during this fair-type format.

Bring copies of your resume and dress professionally!

COMPANIES PARTICIPATING IN CO-OP RECRUITING DAY

Airborne Express

A.O. Smith

Cooper Tools Apex

Ball Aerospace

Copeland

Delphi Chassis

Ethicon Endo-Surgery

Gasper Corporation

General Motors

Greater Dayton IT Alliance

Honda

International Truck & Engine

Lexis Nexis

MacAulay Brown

Mead

Motoman

NAIC

Parker Hannifin Corporation

Qualia Computing

RDS, Inc.

Reynolds & Reynolds

SOCHE

Standard Register

SDRC

Speedway SuperAmerica LLC

Systran Corporation

The Ohio Department of Transportation

Transportation Research Center

Wright-Patterson Air Force Base

YSI

NOTE: In order to participate in the co-op day, you must be registered with Career Services. For more information, contact Jack Butler in Career Services at (937) 775-2556.

Sponsored by:

Career Services and the College of Engineering and Computer Science

Greater Dayton IT Alliance College Internship Program

The Greater Dayton IT Alliance is the region's only organization supporting the growth of the IT industry. Member companies are offering summer internships to IT students and those studying IT-related majors. Scholarship opportunities are available to some students. This program has been designed to connect students with business and community leaders. Students are eligible to apply for the program until January 27, 2001. To apply, visit their website at: <http://www.daytonitalliance.org> and click on the career page.

SOCHE Student Research Program

SOCHE has several positions for undergraduate and graduate students available. They offer flexible work schedules, career related work experience in their state-of-the-art labs and competitive wages (Soph. \$10.40/hr; Jr. \$11.65/hr; Sr. \$13.00/hr; Grad. \$15.90/hr). Applicants must be degree seeking students in good standing with U.S. citizenship. Positions available include the following:

Project No. TBA - Nondestructive Evaluation Data Fusion, Analysis and Acquisition Support

Major: Physics, Electrical Engineering, Computer Science
 Description: The student will need to learn existing inspection techniques, acquire data with them, become familiar with what constitutes defects signals. This will entail acquiring data using ultrasonic scanning systems, ultrasonic array based transducer systems, acoustic microscopes, eddy current systems, and X-ray based systems.

Project No. TBA - Nondestructive Evaluation Support

Major: Physics, Electrical Engineering, Computer Science
 Description: The student will need to learn the operation of the PLUS, Sonix and UPA systems while working with government researchers. This data will need to be analyzed, and processed using a variety of software packages (MathCad, C++, etc.). Data acquisition systems, written in Labview will have to be developed.

Project No. TBA - Development of Discontinuously-Reinforced Ti Alloys

Major: Materials Science
 Description: The work involved with this project includes: preparation of samples; mechanical characterization of development alloys; preparation of metallographic samples; optical microscopy; scanning electron microscopy; X-ray diffraction and transmission electron microscopy.

Project No. 199B - High Cycle Fatigue of Titanium and Nickel Base Superalloys

Major: Mechanical Engineering
 Description: Experiments will be conducted on titanium and polycrystalline nickel base superalloys under High Cycle Fatigue at different stress ratios to determine the crack initiation and propagation properties. Data will be collected and analyzed to determine stress states and criteria for crack initiation and extension.

Project No. 212B - Formulation, Processing, and Characterization of Aircraft Coatings

Major: Chemistry, Chemical Engineering, Materials Science
 Description: The work required in this project involves research of advance coating formulations, and testing. This includes the formulation of advance primers and topcoats through the use of novel and commercial resins, hardeners, pigments, and additives.

Project No. 248B - Analysis of Stress and Strain Behavior of Ceramic Matrix Composites

Major: Mechanical Engineering, Materials Science
 Description: Nine laboratories conducted room temperature tension tests on a Nicalon fiber reinforced Silicon-Nitro-Carbide ceramic matrix composite. Each laboratory conducted ten tests, and the stress vs. strain traces were provided electronically to AFRL/MLLN. Draft Test Standards from ASTM will be used. Work will require extensive use of computers, with emphasis on spreadsheets, macros, and statistical methods.

Project No. 253 - Characterization of Mechanical Behavior of Advanced Materials

Major: Materials Science, Mechanical Engineering
 Description: The focus of this research is to develop the life prediction methodology of advanced materials, such as titanium alloys, ceramics and metal matrix composites including investigation of damage mechanisms under various mechanical and thermal loads, as well as to understand the fretting fatigue and related cracking issues of high temperature titanium alloys when subjected to high cycle fatigues using experiments and mathematical model techniques.

Project No. 254 - Bi-directional Reflectance Distribution Function Measurement System

Major: Electrical Engineering, Physics
 Description: Investigate the bi-directional reflectance distribution function of several different materials, including those used in land and space-based vehicles. The student should have knowledge in the following areas: LabView, GPIB Programming, Matlab, optics, and radiometry.

Project No. 259 - Finite Element Material Fatigue Failure Predictions Under Turbine Engine Operating Condition

Major: Aeronautical/Mechanical Engineering, Comp. Science
 Description: Assisting the analysis of various plate configurations acted upon by forcing functions during fatigue failure. This analysis will be carried out making use of an in-house finite element vibration code, and the results will be compared with ABAQUS. The major goal is to develop a novel vibration-based method for assessing materials under fatigue loading in a turbine blade environment.

Project No. 263 - High Temp. Superconducting Wires for Power Generation: Pulsed Laser Deposition Plume Dynamics

Major: Electrical Engineering, Materials Science, Physics
 Description: The student would assist in one of two major research projects that are being undertaken: (1) develop advanced optical diagnostics for process monitoring of YBCO deposition and (2) investigate plume dynamics and collisional kinetics to develop a better understanding of the gas phase mechanisms and film growth.

Project No. 273 - Characterization of Friction Stir Welded Materials

Major - Materials Science, Mechanical Engineering
 Description: Friction stir welded aluminum based materials and titanium alloys will be analyzed for microstructure using optical and scanning electron microscopy. Heat treatments and microhardness measurements will be performed in the weld zones and compared to the base material to obtain relationship between microstructure and strength of the material.

Interested candidates can visit the SOCHE website at: <http://www.soche.org> to get an application. Applications must be submitted with a resume and transcript. For more information, call (937) 910-5808.

FACULTY

A C T S

Soon Chung, Ph.D., CSE, has received funding in the amount of \$34,575 from Lexis Nexis for his proposal entitled “Development of a Parallel Text Data Mining System.”

Oscar Garcia, Ph.D., CSE, lectured at the Universidad de los Andes in Merida, Venezuela, under the Institute of Electrical and Electronic Engineers (IEEE) Computer Society International Distinguished Visitors Program. On November 30, Dr. Garcia lectured on “Notas sobre la Complejidad,” and on December 1, he lectured on “Bioinformatica” to an audience of more than 150 attendees.

Thomas Hangartner, Ph.D., BIE, has received funding in the amount of \$60,000 from the Kettering Medical Center for his proposal entitled “Analysis of Cardiac Images by Computed Tomography.”

Junghsen Lieh, Ph.D., ME, has received funding from Delphi Chassis Systems in the amount of \$18,000 for his proposal entitled “Advanced Manufacturing Processes and Eccentric Grinding” and \$8,500 from Anteon Corporation for a proposal entitled “Concentration Effects of Simulated Random Realistic Damage on Structural Stiffness and Transport Resistance.” Dr. Lieh also received \$1,817 in funding from A & S Pacific International, Inc. for “Manufacturing Information System Lab Development.”

James Menart, Ph.D., ME, has received funding from the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. in the amount of \$2,410 for a proposal entitled “Two-Phase Piston Cylinder Apparatus for Thermodynamics Lab.”

Sharmila Mukhopadhyay, Ph.D., ME, has received funding from Universal Technology Corporation in the amount of \$25,000 for her proposal entitled “Characterization of Carbon Materials.”

Chandler Phillips, M.D., BIE, was recently inducted as a Fellow of the American Institute of Medical and Biological Engineering (AIMBE). Dr. Phillips was cited “for contributions to advancing the technology and professional development of biomedical engineering as applied to the rehabilitation of paralyzed muscle.” Dr. Phillips has also had a textbook published by John Wiley entitled Human Factors Engineering.

Mateen Rizki, Ph.D., CSE, has received funding from the Department of Defense, Air Force and Air Force Research Laboratory in the amount of \$112,500 for his proposal entitled “Evolving Pattern Recognition Systems.”

Ling Rothrock, Ph.D., BIE, has received funding in the amount of \$27,286 from Battelle Columbus Laboratories for his proposal entitled “Design and Implementation of a Training and Experimentation Environment for Cooperative Use.”

Mitch Wolff, Ph.D., and Ramana Grandhi, Ph.D., ME, have received funding in the amount of \$150,000 from the Department of Defense, Air Force and the Air Force Research Laboratory for their proposal entitled “Cooperation HCF Research in AFRL Facilities.”

WHAT TO EXPECT WHEN YOU START YOUR FIRST JOB
and
WORKING IN THE AEROSPACE INDUSTRY
by
Mr. Burton Dicht
Director, ASME Southern Regional Office

4:00 p.m. - 5:30 p.m.
Thursday, January 4
145 Russ Center

Sponsored by:
WSU Student Section of ASME

DESCRIPTION

Is this you, sometime in the future?

You've worked hard and now you're graduating college with a degree in Mechanical Engineering. Just over the horizon, you are set to begin your first job as a practicing engineer. Are you nervous? Do you wonder what that first day will be like? Are you asking, "What will they expect from me?" "How much of my engineering education will I use?"

In an informative presentation by Mr. Burt Dicht, Director of ASME's Southern Regional Office, you will find the answers to these and many other questions. Mr. Dicht will take you through that first day on the job, as well as provide you with information on "How to Do Your Job" and tips on "Getting Ahead."

In this presentation, Mr. Dicht will draw on his experiences as a lead engineer for Northrop Grumman and Rockwell Space Transportation Systems Division, to describe the typical job functions and provide you with some insight into the design process and how engineers do their jobs.

His emphasis will be on the aerospace industry as Mr. Dicht will close with the employment outlook and search strategies for those of you who might like a career in aerospace. Please be sure to attend this enlightening and fun presentation.

BIOGRAPHICAL BACKGROUND

Mr. Dicht has a B.S. degree in Mechanical Engineering from Temple University in Philadelphia and an M.A. degree in History from California State University, Northridge. His employment experience includes positions as a lead engineer for Northrop Grumman Aircraft and Rockwell Space Transportation Systems Division. He has worked on such projects as the F-5E Tiger II, the F20A Tigershark, the F-18E/F Super Hornet, the YF-23A Advanced Tactical Fighter and the Space Shuttle.

Currently, Mr. Dicht is the Director of ASME's Southern Regional Office in Dallas where he is responsible for supporting the volunteer activities of members in Regions X and XI. Before joining ASME as a staff member, Mr. Dicht served on the staff of Congressman Jon Fox. He is a 20-year member of ASME, starting out as a student, and has served in many volunteer positions, including Chair of the Los Angeles Section and the History and Heritage Committee.

Only CECS Students Can Access Computers

In fulfillment of agreements made when the ECS Student Technology Fee was instituted and due to a large number of requests, the computers in Room 152C now authenticate to a database of valid ECS users. The database is updated several times a day, and contains all persons who have paid the ECS technology fee, as well as faculty, staff and other ECS affiliates.

After the usual login screen is complete, an additional screen appears which requests a CaTS user name and password. When the user name coincides with a valid ECS user in the database and the correct password is entered, the computer logs in as usual.


If you have forgotten your CaTs user name and password, you will need to go to the CaTs Help Desk in the basement of the Library Annex with a picture ID.

Be sure to log out when you are done using a computer. Each student is responsible for all activity on the computers under their log in name.



The National Society of Black Engineers would like to announce its schedule for meetings during Winter Quarter 2001. General meetings will be held every Monday from 5:00 PM - 6:00 PM in Room W169C of the Student Union. The first meeting of the quarter will be Monday, January 8th. For more information, contact Shannon

Griffin, NSBE President, at (937) 432-6651 or via email at griffin.9@wright.edu.



BITS & PCs
College of Engineering and Computer Science
Wright State University

BITS & PCs is a monthly newsletter published by the College of Engineering and Computer Science to inform students about activities, news, opportunities and changes occurring in the College. 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 current issue of *BITS & PCs* is available on the Web at <http://www.cs.wright.edu/bitsandpcs/>. Copies are also available in the College office, any Department office, literature racks in the Russ Center Atrium, Russ Center Study Lounge, or the Student Club Room.

The next issue of *BITS & PCs* will be published the week of February 5, 2001. To submit items for this issue, call the College of Engineering and Computer Science at (937) 775-5001, or send email to jgarring@cs.wright.edu by January 19, 2001. The College of Engineering and Computer Science reserves the right to edit all material for publication.



REMINDER: Now that the cold weather is here, please be reminded that Wright State University has instituted a smoke-free environment. Smoking is not permitted in any location of the Russ Engineering Center.



College of Engineering and Computer Science
3640 Colonel Glenn Hwy.
Dayton, OH 45435-0001

Office of the Dean