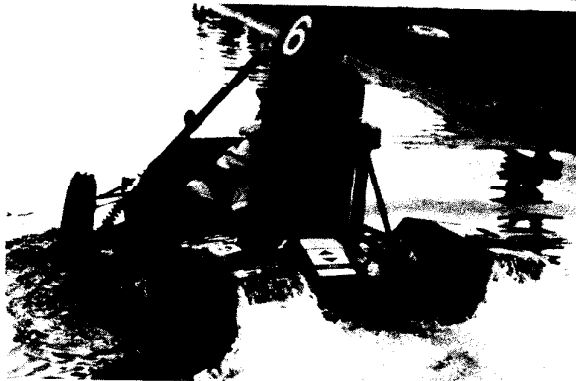


**MECHANICAL AND
AEROSPACE
ENGINEERING**



An occasional newsletter for the alumni and friends of the Department of Mechanical and Aerospace Engineering (MAE) at West Virginia University.

Summer, 1988



The 1988 Mini-Baja Car

**WVU MINI-BAJA AND FORMULA
CARS SUCCEED AGAIN**

SAE Formula Race Car: This year was the most successful for the WVU teams in the SAE vehicle design competitions. The M.E. senior design teams took part in three separate events with five versions of vehicles.

At the SAE Formula Race Car Competition in Detroit, WVU entered two vehicles. One, powered by a 600 cc Honda Hurricane motorcycle engine, finished 2nd place overall and won the acceleration event (almost 70mph in 5 seconds over 100 yards). The second car ran on methanol for a special fuels competition, and finished 2nd winning \$1,000. Its top methanol fuel economy earned \$750 from the U.S. Department of Energy. The formula team is advised by Dr. T. R. Long, Associate Dean of COE. Students taking part were Brian McGrath, Scott Ford, Rory Williams, Tim Winfield, Scott Simms, R. J. James, Bill Preece, A.D. McKisic, Randy Churchill, John Smith and Tony McKenzie.

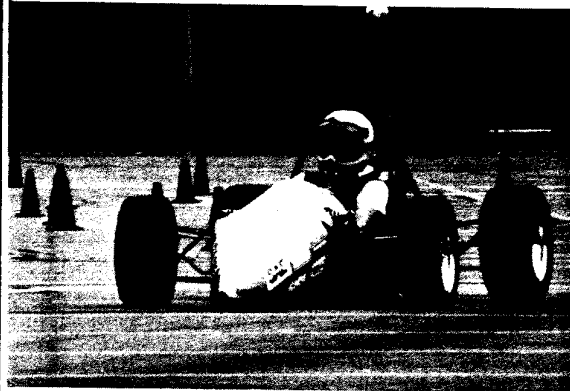
Mini Baja East Competition: This year the team traveled to the University of Montreal with a newly designed vehicle. The Mini-Baja East requires that the vehicle be able to travel over all kinds of terrain including deep water. WVU's vehicle performed very well in all events and finished 3rd place overall in a field of over 30 schools. In the long endurance race,

WVU came in 2nd behind the overall winner, Louisiana State University. Students taking part included Eric Robey, Scott Reiter, Randy Rogers, Rob Gross, Bob Davis, John Smith and Tony McKenzie. The Mini-Baja advisor is Dr. K.H. Means, Associate Professor of MAE.

Mid-West Mini-Baja Competition: WVU entered two vehicles in this years Mid-West Baja hosted by the Milwaukee School of Engineering. The Mid-West Baja has no water maneuverability requirements, but the endurance course proved to be one of the most rugged ever encountered. In a field of over 40 cars from all over the US & Canada the WVU vehicles finished in 3rd and 10th places overall. They also received individual awards for excellent performance in acceleration, top speed, maneuverability, and safety design. Students going to the competition included Eric Robey, Brian McGrath, Tim Winfield, John Smith and Tony McKenzie.

Mr. George Utt, MAE Senior Technician, played an important role in guiding the students during the construction of all vehicles and in traveling to the competitions. The combined-finish results for WVU were well above any other school in the nation taking part in the SAE Design Competitions.

The 1989 Mini-Baja East will be hosted by West Virginia University. This will provide an excellent opportunity to show off WVU to visitors from throughout North America.



The 1988 Formula Car



Vice-President Bush and Governor Moore listen as MAE Professor James Smith explains the intricacies of the Stiller-Smith Engine.

VICE-PRESIDENT GEORGE BUSH VISITS WVU AND MAE

Vice President George Bush got a short course on energy and medical technology on May 3 during an official visit to the university that began with a research

briefing by President Neil Bucklew and several faculty researchers.

Bush arrived at Hart Field in Air Force Two and was greeted by Governor and Mrs. Arch Moore and Dr. and Mrs. Bucklew, among others.

Among several facilities toured, Bush saw research efforts at the Fluidized Bed Test Facility, where several MAE faculty members are included among those doing energy research.

"Although I may not have understood every technological aspect of it, (this research) bodes well for the future, and this university is on the cutting edge of clean coal technology.

"I'm learning that there's reason to be optimistic about solving the acid rain problem."

He also met the designers of the Stiller-Smith engine, Alfred Stiller (ChE) and James Smith (MAE), who demonstrated their prototype of an improved internal combustion engine.

"With proper research funds, who know?" Bush said, referring to the Stiller-Smith engine. "It may be the wave of the future, powering some of our military assets or some of our cars."

NIGEL CLARK CHOSEN AS OUTSTANDING COE RESEARCHER



Dr. Nigel Clark

Dr. Nigel Clark has been selected as the outstanding researcher in the COE for 1987-88. Dr. Clark joined MAE in 1986 after three years at COMER. He received his Ph.D. degree in 1985 from the University of Natal, South Africa and teaches and does research primarily in the fluid-thermal sciences areas.

LARRY BANTA CHOSEN AS OUTSTANDING COE EDUCATOR



Dr. Larry Banta

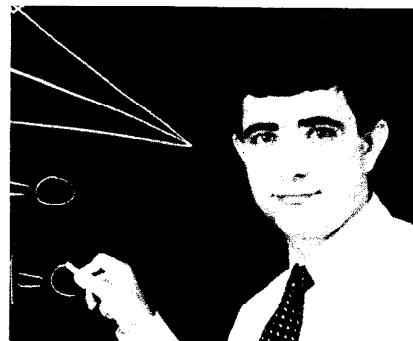
One of five finalists in the COE, Dr. Larry Banta was selected as the 1987-88 outstanding educator. Dr. Jerome Fanucci was also a finalist. Dr. Banta joined MAE in 1986 from Georgia Tech, where he received his Ph.D. His teaching and research interests are in robotics and manufacturing.

LAMBI RECEIVES WEAVER AWARD

Marios Lambi, MAE Graduate Teaching Fellow from Cyprus, received the 1987-88 George W. Weaver Award. This award honors the most outstanding instructor of engineering mechanics courses.

Mr. Lambi received B.S. and M.S. degrees from WVU in 1983 and 1986. Currently a Ph.D. candidate, his research emphasis is fiber-reinforced composite materials.

The award was begun by the Weaver Family as a memorial to the former professor, Assistant Dean of the college, and faculty member who is well-remembered for his personal contributions to achieve excellence in the teaching of undergraduate engineering mechanics courses. Recipients receive \$150 and have their names on a permanent plaque in the Engineering Science Building.



Mr. Marios Lambi

NEW CENTER JOINS INDUSTRY AND ACADEMIA IN SUMMER PROGRAM DESIGNED TO FORGE A FUTURE TOGETHER

Under the leadership of Dr. Emil Steinhardt of the MAE Department, the College of Engineering has recently established the Innovative Technology Utilization Center to foster a direct working relationship between the College of Engineering and West Virginia industries. Although many West Virginia industries greatly need the advantages of innovative technologies to survive in today's market, these industries often lack the expertise and the capital necessary to put modern methodologies to use. At the same time, university faculty and students often lack opportunities to gain the practical experience they need to undertake relevant and useful research and education.

To serve these complementary needs, the Innovative Technology Utilization Center is holding an intensive six-week Summer Partnership Program in which engineering faculty, graduate students, and representatives of West Virginia companies will work together on a specific project. Several project teams, each consisting of one faculty member, one graduate student, and four members of a company, will identify and solve a particular problem of the participating company. The team members will also begin to know each other's needs, capabilities, and interests. During the following Fall, the faculty member will direct teams of undergraduate students who work on design projects at the company. The goal is to establish a long term relationship between the faculty member and industry leading to research and student project opportunities.

Besides working on their projects, participants will also explore modern quality improvement and management philosophies and techniques, including the "Deming" quality philosophy and statistical quality analysis. All the participants should benefit from the program.



The MAE/ECE "pick-and-place" industrial robot.

SENIORS DESIGN AND BUILD INDUSTRIAL ROBOT

A combined team of MAE students and students from the Department of Electrical and Computer Engineering, advised by Drs. Larry Banta (MAE) and Nigel Middleton (ECE), have chosen to design and build a fully functional industrial robot for their senior design project. The robot is capable of locating cans moving on a conveyor belt, lifting them, and placing them in packing boxes. This "pick-and-place" robot will be entered in design competitions and used for future development, teaching, and research.

Divided into teams, the students created the robot from beginning to end: they designed the various mechanical and electronic components of the robot; they planned, programmed, and wired the control system; they machined parts, assembled the machinery, and built the conveyor. In addition, students were responsible for managing the project, making several formal design review presentations, and raising funds to cover some of the expenses of construction. This kind of practical experience will greatly enhance their professional engineering skills.

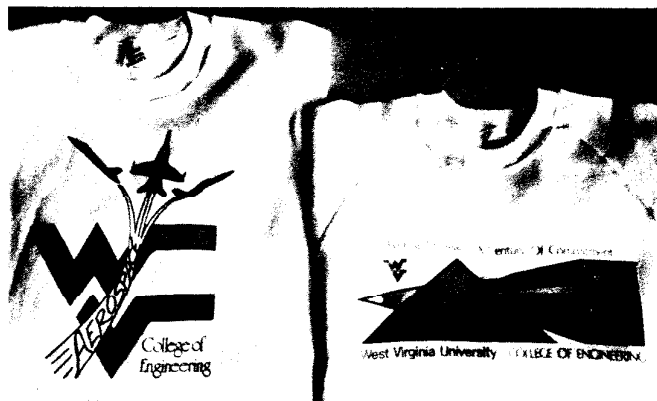
A similar project will be included in 1988-89 as one offering for the ME-program senior design project.

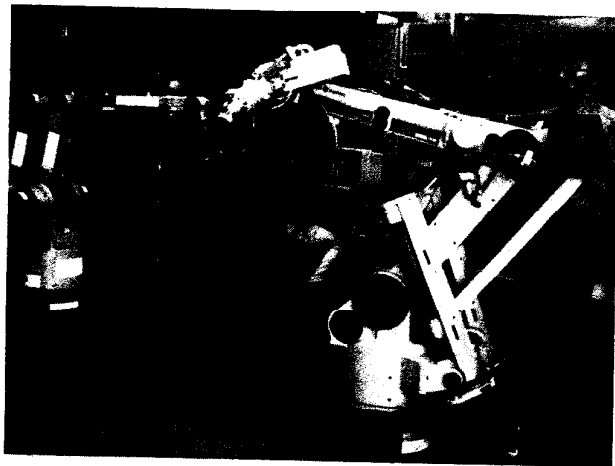
COE AND AE SHIRTS AVAILABLE

COE and AE shirts can be ordered by returning the Data Page reply form and the appropriate check. Prices are as follow, including shipping:

COE: Sweat \$23; w/hood \$25; Tee \$15
AE : Sweat \$20; w/hood \$22; Tee \$12

Please indicate size (S, M, L, XL).
Shirts are multi-color.





The General Electric P-50 and P-60 Industrial Robots provide the focus for much of the robotics research conducted in the MAE Department.

GENERAL ELECTRIC DONATES INDUSTRIAL ROBOTS

The MAE Department's Robotics Laboratory has received a new industrial robot from General Electric Co., the latest in a series of gifts to the school from the firm. The \$61,600 GE-P60 robot has been installed in the Robotics Lab where it joins several other pieces of equipment donated by GE. "We are very grateful to GE for their strong support of our Manufacturing Systems Engineering Program," Dean Curtis Tompkins said.

Faculty and students in the MAE Department have been using robots in their coursework and teaching for many years. However, General Electric's gift will enable faculty to greatly increase the complexity and usefulness of their research in these areas, and will provide undergraduate students with experience operating the latest equipment.

Dr. Larry Banta, Assistant Professor of MAE, said the new robot will offer students the opportunity to conduct more extensive research projects. The P-60 is more advanced than the P-50 model (donated by GE two years ago) and will allow for broader range of study, he added. This gift is particularly timely, since several of our faculty are doing research in coordinating multiple robot assembly tasks, and this new robot can provide a second arm to the existing P-50.

MAE STUDENTS PRESENT PAPERS AT AIAA CONFERENCE

Aerospace engineering students continued their strong attendance record at the annual AIAA Mid-Atlantic Student Conference held at the NASA-Langley Research Center, Hampton, VA. Twenty-five students and five faculty members attended the two day conference. Senior Dave Bennett and two graduate students, Allen Arrington and Mike Cerney, presented technical papers on results of their research. Dave spoke on studies of shock-wave attenuation, Allen presented results of flight test data to determine stability parameters, and Mike described studies of winglet addition to low-aspect ratio wings. John Loth is the faculty advisor for the WVU AIAA Student Branch, which is one of the most active in the country with programs including both technical and social events.

INDUSTRY AND ALUMNI SUPPORT

At WVU, state funds are only part of the operating budget. For MAE, research contracts provide about the same dollar amounts as state funding. While research-provided equipment, Graduate Research Assistants, and undergraduate workers help support the educational programs, the use of such funds is not flexible. Industry donations, from large and small companies, help our programs, but are not a large part of the MAE budget. Donations from alumni and friends are even smaller.

In the near future, we will be outlining ways which alumni can help us. In the meantime, please reflect on what your WVU education has meant to you, and consider whether you can help present-day students have a better education by donating to the ME and AE programs.

Three main areas of emphasis are being considered: a major WVU campaign primarily for capital equipment, MAE campaign to help with expenses related to the undergraduate programs, and the establishment of endowments to provide scholarship funds to undergraduate students. The Advisory Committee for Mechanical and Aerospace Engineering has been very active in helping formulate plans. More information will be provided soon!

DATA PAGE

Please take a minute to fill out some of the data we need to bring our records up to date.
Then simply detach, fold, tape, and mail.

Today's Date: _____

Name: _____ W.V.U. Degree(s): _____
W. V. U. Graduation (Mo., Yr.): _____

Present Home Address: _____

Work Address: _____ (Firm Name)

Date Started: _____

Phone(s): Home _____ Work _____

Position Title : _____

Advanced Schooling: School Dept. Dates Degree?

News of Family, Hobbies, Work, Etc.:

Other W.V.U. A.E. and M.E. Graduates whose whereabouts you know:

NAME COMPANY COMPANY OR HOME ADDRESS

NOTE: If you desire a printout of our alumni records, please send us a note with the years you desire. Designate AE, ME, or TAM.

Dept. of Mechanical and Aerospace Engineering
West Virginia University
P.O. Box 6101
Morgantown, WV 26506-6101

29014018
FIRST CLASS MAIL

PLEASE FORWARD

FOLD

FOLD

FROM: _____

TO: Dr. Richard E. Walters
Dept. of Mechanical and Aerospace Engineering
West Virginia University
P. O. Box 6101
Morgantown, WV 26506-6101