TOWARD STEADY STATE

The undergraduate enrollment in ME continues to achieve new records each year, as depicted in the chart on the next page.

After a year of Enrollment Management in the College of Engineering, it might be expected that the situation within ME would be stabilized. The plan itself has been working quite well and there are only a few problem areas. Basically, the oversubscribed departments in engineering admit only a limited number of students to their professional programs each year. Students who have an interest in Mechanical Engineering are designated Pre-Mechanical Engineering (PME). Upon completion of the Basic Program they are divided into two groups: those who previously have been denied enrollment in ME 253 (Introduction to Mechanical Engineering) and those who have not been previously denied enrollment in the course. In each group, students are rank-ordered by a GPA computed for Basic Program courses. Up to 50% of the available spaces are filled from the first group. Formal entry into the ME Professional Curriculum is acknowledged by an immediate switch from a Freshman Engineering advisor to an ME advisor.
During 1981-82, 80 students were admitted to ME 253 and the intent was to reach steady state in 1982-83 and admit 110 students. Last spring, however, five new faculty positions were authorized for ME to permit the department to graduate more students. The departmental flow model has been modified accordingly, as indicated in the next column.

**Undergraduate Enrollment Trends in Mechanical Engineering, 1966 - 1982.**

Fall enrollment is 489 ME's and 197 PME's. This indicates that a) the junior and senior classes are still too large—due to previous excess enrollment and b) there will still be many disappointed PME's. The effective enrollment of 639 (489 + 150) is above the steady-state value (580); however, the upward trend has clearly been reversed. Prof. William Bathie, Classification Officer, continues to try to steer the system toward a steady state.

Graduate enrollment has taken an upturn, both on campus and as a result of the new off-campus program at John Deere Product Engineering Center, Waterloo. There are 18 Ph.D. students and 22 M.S. students in the regular program. This is a record enrollment. The off-campus program, developed at the request of John Deere, will enable 20 Deere engineers to gain the M.S. within a four-year period. One course will be offered each Fall, Spring, and Summer Semester—either by a faculty member at Waterloo or by off-campus video. Prof. Bergles is the I.S.U. coordinator and Prof. Shapiro has been responsible for graduate admissions. Prof. Misschke developed the basic academic program, which stresses machine design, and is now presenting the first course—ME 570X, Computer Aided Design.

**Catalog Changes**

Material for the 1983-85 General Catalog was recently submitted. The following changes to the ME undergraduate curriculum are incorporated:

- Adding 2 credits to the socio-humanistic elective requirement, combining ME 201 and 301 into a junior year course, adding English 414, and dropping Phys 224. The total credits required for graduation were increased from 127 1/2 to 131 1/2.

Students have the option of graduating according to the Catalog in effect at matriculation or the current Catalog.

**Flow model for students in the Mechanical Engineering Curriculum.**

**ABET**

A member of the Accreditation Board for Engineering and Technology (ABET) will be visiting the department October 4 and 5 to evaluate the undergraduate mechanical engineering program. This evaluation occurs every six years for most departments in the College of Engineering. In addition to evaluating written reports and records, our Visitor will interview administrators, faculty, and students.

**A Change in Administration**

Dr. Bergles, Chairman of the Department since 1972, has asked to be relieved of the chairmanship so that he can devote full time to research, teaching, and his many national and international assignments in heat transfer and continuing education. An international search for his replacement has been conducted and the final candidate will visit I.S.U. during September and October. Students are welcome to participate in the interviews.

**EXXON CONTRIBUTES**

The Exxon Education Foundation has selected the department for a 5 year Faculty Assistance Program grant totaling $100,000. The grant is for recruitment, retention, and development of young ME faculty. The department is one of 100 engineering departments in the country chosen for this recognition.
NEW FACULTY

Dr. P. A. Mollan joins us as Assistant Professor in the Materials and Manufacturing Processes Division, replacing Dr. S. C. Lee who has assumed a faculty position at Tatung Institute of Technology, Taiwan. Dr. Mollan recently received his Ph.D. in Materials Science from Oregon Graduate Center. He holds the Master of Engineering degree in ME from Indian Institute of Science, Bangalore, and baccalaureate degrees from Bangalore and Madras. His special interest is in laser processing of materials.

Dr. Michael B. Pate is Assistant Professor in the Heat Transfer Division. He received the B.S. in Marine Engineering from the Naval Academy and served as a nuclear submarine officer. His M.S. in ME is from Arkansas and he received the Ph.D. in ME from Purdue in 1981. For the past year he has been at the General Electric Advanced Reactor Systems Department in Sunnyvale, CA. His interests include two-phase flow and heat transfer in power and refrigeration systems.

Dr. Joseph M. Prusa has been appointed Assistant Professor, also in the Heat Transfer Division. He just completed his Ph.D. in ME from Illinois (Urbana-Champaign) and also holds M.S. B.A. and B.S. degrees from Illinois. His major research interest is in numerical solution of heat transfer and fluid flow problems.

VISITING FACULTY

Dr. Suhas P. Sukhatme is Visiting Professor in Thermodynamics and Heat Transfer. He is Professor of ME at Indian Institute of Technology, Bombay, where he serves as department head. He received his B.S. at Benara Hindu University and earned S.M. Mech.E. and Sc.D. degrees from M.I.T. He is internationally recognized for his work in heat transfer and thermal systems, and is a member of numerous advisory committees and editorial boards.

Dr. Barbara K. Lunde has assumed a temporary position as part-time Assistant Professor in Thermodynamics and Energy Utilization. She is currently Staff Manager and Technical Consultant for Energy Systems at Northwestern Bell in Des Moines. Previously she was Project Engineer on solar energy systems for the Des Moines firm of Brooks, Borg and Skiles, Architects-Engineers. Her degrees are from Northwestern and I.S.U., and she has held research positions at M.I.T., NASA Goddard, and I.S.U.

Dr. Andrzej A. Oledzki of the Department of Aeronautical Engineering and Energetics, Warsaw Technical University, is again Visiting Professor in Machines and Systems. Dr. R. Bruce Hopkins continues as part-time Visiting Associate Professor in Machines and Systems. Stanley M. Crull is again part-time Assistant Professor in Machines and Systems. Jeffrey L. Balvanza continues as temporary Instructor in Thermodynamics. Continuing as Visiting Scientists for all or part of the year are Chung-Fang Ma, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, Peoples Republic of China; Prof. Yin-Koo Tan, Chemical Engineering Research Institute, South China Institute of Technology, Guangzhou, PR; and Zhiquan Ye, Department of Mechanical Engineering, Gansu University of Technology, Lanzhou, PR.

THE NEW BUILDING

When the ME Newsletter came out one year ago, the architects, Charles Herbert and Associates, and engineers, Stanley Consultants, had been selected for the new ME/ESM Building. Schematic drawings for the building were in the first stages of preparation. During the intervening year, steady progress on the road from drawings to brick and concrete has been realized. The first schematics produced a design in which most laboratories were to be located below grade with a large court covering these spaces. After careful review by the department faculties, the University Physical Plant, and the University Architect, this design was rejected.

The decision was not on the amount of underground space and psychological affects of such an environment on students and faculty. As a result of these deliberations, a new design was progressed beginning in January, 1982. This design, shown on page 1, was accepted by the building committee and was approved by the Board of Regents at their March, 1982 meeting. Preparation of design-development drawings began immediately.

During the design-development phase, additional space was programmed into the building. These spaces are to accommodate a satellite for the Computer Center and a location for telephone switch gear. They are to serve the campus. Design-development drawings and documents for each space in the building were approved by the departments in July, 1982. These detailed drawings show all services and equipment in each laboratory, classroom, office, and support area in the building. The ME faculty has been interacting regularly with the architects and engineers during the preparation of detailed drawings and specifications. With Professor Jerry L. Hall as chairman, the ME Laboratories Committee has actively participated in laboratory planning. Countless hours have been spent selecting equipment, locating the equipment, and providing services for research and teaching laboratories.

Professor Robert C. Fellinger serves as the Mechanical Engineering Department coordinator for the project with Professor George K. Serovy, Assistant to the Dean, coordinating activities for the two departments and representing the College of Engineering.

Construction of the new building will require some preliminary work. Relocation of a steam tunnel that currently runs through the area to be occupied by the north section of the new building is to be completed soon. The contract has been awarded for remodeling of the Armor to accommodate NROTC. The present NROTC Building will be demolished to provide space for the new construction. Other spaces and relocations will be provided by the demolition of Building B, use of the parking lot between Building B and the NROTC Building, and the vacant area north of the present ME Building.
The $14.1 million building will be financed by bonding. The successful bidder for the bonds was determined September 23rd.

At this time it is anticipated that working drawings will be completed in late 1982 with a bid letting in February or March of 1983. Construction will be in two phases. The north section of the building housing offices, classrooms, and most teaching laboratories is scheduled for completion in late 1984 or early 1985, depending on the vagaries of Iowa winters. Following completion of the first phase, the departments will move most operations into this section of the building. Partial or total demolition of the existing ME Building will follow the move to this part of the new building. After this move, demolition and phase-two construction will begin. Major research facilities to be located in phase two include the heat transfer laboratories, turbomachinery laboratories, low-speed wind tunnel, water tunnel, and the shock tube laboratory. It is anticipated that phase two construction, completing the building, will be finished in late 1985.

The brick-and-mortar scheduling part of the building has been accompanied by a program for selection of new and improved equipment. Some State funds will be available, and additional support from both State and external sources is expected. Committees from both departments have developed specifications for replacement and new equipment items, with priority given to upgrading teaching laboratories, computational systems, and classroom aids.

Completion of the new building will mark the end of an effort begun in 1962 to upgrade the facilities of the two departments. The present Laboratory of Mechanics (ESM), originally built in 1883, is the oldest engineering building on campus. Mechanical Engineering laboratories built in 1907 and 1913 will be replaced by the new facility. The efforts of alumni and friends of the College of Engineering, the support of the College and University administrations, and the countless hours of faculty work in planning the building have all contributed to what promises to be an outstanding contribution to Iowa State's continuing quest for excellence in teaching, research, and service. We will keep you posted as the project moves ahead during the next few years.

MIDNIGHT REQUISITIONS CONTINUE

The old ME Building is not secure. Valuable equipment is still disappearing and there is no assurance to cover the replacement. Please help by locking lab doors, closing windows, and being alert for possible incidents.

BLACK-HILSTROM ME DEVELOPMENT FUND

In 1958 Hollis R. (Pete) Hilstrom, ME '34, established a faculty development fund for the department. In 1980 the fund was changed to an endowment (Achievement Foundation 94N) in honor of Mr. Hilstrom and Prof. Henry M. Black, Head of the Department from 1946 to 1972. Broad and generous response from hundreds of ME alumni has resolved in a permanent fund of over $84,000. The interest provides an important supplement to State current expense allocations and industrial gifts by covering expenses in the following areas: travel to professional meetings, short course attendance, support of publications, visiting seminar speakers, and faculty recruitment. The department is deeply grateful for this expression of confidence by alumni.

SCHOLARSHIPS

At the ME Banquet last May, undergraduate scholarships totaling over $38,000 were awarded to 45 ME students. The scholarship competition for 1983-84 will be announced in December. Scholastic attainment, extracurricular activities, and need are the factors usually considered.

IS THE CO-OP PROGRAM FOR ME?

Co-op has been a way of life in ME at Iowa State since 1955. Students in the program spread the last four semesters of the curriculum over three years, in the process gaining 15 months industrial experience with a company of their choice.

Last year, 43 students participated in the program with 18 companies. Fourteen students were graduated from the program during 1981-82.

Students must be in or have completed ME 253 to be eligible for the program. Interested? Then plan to attend a meeting at 5:10 p.m. on Oct. 27th in Room 221 N.E. Bldg. to obtain additional details.

JOB OFFERS DOWN, SALARIES UP

Engineering Placement reports that Spring 1982 ME B.S. graduates averaged 2 job offers and accepted positions at salaries averaging $25,800 per year, an increase of 8.5% above last year's offers. The number of offers is only half of that for the previous year. Preliminary indications from recruiters are that ME's will have to scramble even harder this year to land suitable jobs.

Seniors should avail themselves of the Graduating Engineer which contains useful tips on career selection and interviewing. Free copies provided periodically by the publisher are distributed in the department.

HELP US HELP YOU

We are always looking for ways to improve the department. Please forward suggestions to Prof. Bergles or Prof. Bathie verbally, in writing, or through your ASME, SAE, Pi Tau Sigma, or Curriculum Committee representative.
ASME STUDENT SECTION

1982-1983 Officers:
Chairman: Eric Naylor
Vice Chairman: Shane Smith
Treasurer: Justin Rundle
E-Council: Max Koschmider
Bert Bailey
Programs: Kathy Fowler
Publicity: Debbie Overman
Newsletter: Pam Ovitt
Faculty Advisor: Prof. Ron Nelson

ASME has planned a very active 1982-1983 year
beginning with the Annual ME Faculty/Student Picnic
this September. ASME will be holding monthly
meetings on the first Monday of each month featuring
programs designed to educate and entertain the
ME student.

ASME will be cooperating with SAE and Pi Tau Sigma
to develop an informative slide program about our
ME department and program, as well as working to-
tgether on the 1983 Veishea display. Last year's
efforts won an award for the "Flame of Excellence"
Open House display. We hope we can repeat this
outstanding performance next May. We can also look
forward to seminars, paper competitions, tours, and
other events during the coming year. Keep an eye
on the ASME bulletin board across from the Main
Office.

PI TAU SIGMA

1982-1983 Officers:
President: Keith Dau-Schmidt
Vice President: Pam Ovitt
Secretary: David Zoz
Treasurer: Donna Reed
Parliamentarian: Max Koschmider
Faculty Advisor: Prof. Ted Okishiki

Along with the fall and spring initiation of new
members, there will be a fall social for current
members. This year Pi Tau Sigma plans to sponsor
a Mechanical Engineering Spring Picnic and the
annual Egg-Put Contest. In conjunction with ASME
and SAE, Pi Tau Sigma will work to develop a slide
program about the Mechanical Engineering program
at Iowa State. The revised Student-Teacher Evalua-
tion Forms and output will be used again this year.

SAE STUDENT BRANCH

The Society of Automotive Engineers is a profes-
sional organization dedicated to the advancement of
the technology of self-propelled vehicles and prime
movers. Student branches, such as at I.S.U., allow
students a chance to participate in the activities of
SAE as well as to take advantage of benefits of
SAE membership. Anyone interested in joining SAE
should contact Prof. Leo Peters or Kevin Shepherd.

SAE has a number of events planned for Engineers
Week. On Monday and Tuesday, September 27 and 28,
there will be the new car display on the lawn south
of the ME Building. Also during E-Week, SAE will
have an exhibit on John Deere's Waterloo Foundry.

Work on I.S.U.'s entry for Mini Baja is coming
along smoothly. Mini Baja, for those not familiar
with it, is an annual design and performance compe-
tition among SAE student branches. The I.S.U.
team membership is open to all engineers. Tentative
blueprints were completed last spring for the
off-road vehicle shown below. Final design engi-
neering should be completed this fall, with fabrica-
tion and assembly to begin late this year.

Sneak preview of the all new I.S.U.
Mini Baja Mark I.

ALICE R. BLACK FUND
FOR THE PERFORMING ARTS

Alice Reddington Black, in 1979, established a fund
"to introduce undergraduate students in mechanical
engineering to the performing arts." On May 23,
1982, Alice Black passed away, but because of her
thoughtfulness and generosity, funds are available
to continue this program.

Two tickets to a performing arts event on campus
are awarded to a student chosen by lot from among
the group of students who have indicated an inter-
est in a given event. Events for which tickets
have been purchased are posted outside Room 206.
Plan to sign up for as many events as possible.
Remember, you can't win if you don't sign up!

LARSON CHAIRS ATHLETIC COUNCIL

Prof. Jordan L. Larson, Jr. was elected Chair of
the Intercollegiate Athletic Council. He sees as
major challenges the equalization of men's and
women's athletics and eliminating recruiting
violations in the conference. His year will be
much easier due to the recent win at Iowa City.
FACULTY RECOGNITIONS

Delmar B. Van Meter was promoted to Associate Professor. A graduate of the University of Missouri, he joined the ME Faculty in 1958. Regularly teaching basic and applied courses in thermodynamics, he has been responsible for the development of laboratories in thermal systems. Prof. Van Meter has also been co-investigator in major research programs for EPA and the Iowa Highway Commission.

Prof. William J. Cook was awarded a one-year Faculty Improvement Leave at NASA Ames Research Center, Moffett Field, California. He will study the behavior of turbulent boundary layers in oscillating flow, as might occur with airflow over helicopter blades.

Prof. David B. Wilson (History and ME) will spend Spring and Summer Semesters of 1983 in Glasgow and Edinburgh, Scotland. He will examine physics education in Scottish universities as part of a larger study of physics education in 19th Century British universities.

Prof. James E. Woods (ME and Architecture) received the prestigious Presidential Citation of Honor from ASHRAE at the Society’s meeting in Toronto last June.

Prof. Jerry Lee Hall was named Vice-Chairman of the Mississippi Valley Section of SAE.

Prof. Arthur E. Bergles is Chairman of the ASME Heat Transfer Division for 1982-83. He was named to the Honorary Editorial Advisory Board of the International Journal of Heat and Mass Transfer and to the Scientific Council of the International Centre for Heat and Mass Transfer.

Inducted into the I.S.U. 25-Year Club last March were Professors George H. Junkhan, Patrick Kavanagh, and George K. Serovy.

Prof. Leo C. Peters was named Outstanding Professor in Mechanical Engineering by the ASME Student Section and Professor of the Year by all graduating seniors.

WÄRMEÜBERTRAGUNG IN MÜNCHEN

Every four years the general rate of heat transfer increases due to the International Heat Transfer Conference. The 7th such meeting was held in Munich, West Germany early this month. Attending and presenting a total of 6 papers from the Heat Transfer Laboratory were Professors A. E. Bergles, G. H. Junkhan, T. H. Kuehn, and R. H. Fletcher. They were joined by graduate students M.-C. Chyu and V. Nirmalan and also former graduate students Dr. S. D. Joshi and Dr. E. A. B. Maldonado. As U.S. co-delegate to the Assembly for International Heat Transfer Conferences, Prof. Bergles was an organizer of this conference. In addition to the many lecture and poster sessions, the I.S.U. delegation attended two-phase flow demonstrations at the Hofbräuhaus.

ALUMNI AWARDS

Several ME alumni were recognized during Alumni Days last June. Professional Achievement Citations in Engineering were awarded to two alumni: Russell L. Growther, Jr. '53, Manager of the Reactor Physics Technology Group at General Electric Company, has played a major role in the development of nuclear power in this country. Ray T. Townsend '35, President of Townsend Engineering Company, has commercialized innovative meat processing equipment. He holds over 70 U.S. patents and has a total of 270 patents in more than 30 foreign countries.

Also receiving major recognitions were: James H. Boyd '38, Vice-President, Fisher Controls Company received an Alumni Recognition Medal. He is a past president of the I.S.U. Alumni Association. T. Cooper Evans '49, U.S. Congressman from the Third District in Iowa, received an Alumni Merit Award. He had a distinguished career as military engineer, farmer, and State Representative before his election to Congress.

AWARDS TO STUDENTS

The following Mechanical Engineering students have recently been honored, as indicated:

William C. Angell '82 received the Kenneth L. Evans Award. This memorial award is presented each year to an upper class student in ME who has demonstrated good scholarship, character, and leadership. The award was presented at the Annual ME Banquet last May.

Larry D. Diemer '81 was selected by a jury of machines and systems faculty to receive the Hollis R. Hilstrom Machine Design Award for the best ME design project during the past year. The recognition includes a check for $300.

Jennifer J. Schuller '82 has been selected as the Outstanding Senior and will be recognized at the E-Week Luncheon on September 28th.

CABT

An Industry-University Cooperative Research Center for the Advancement of Building Technologies (CABT) has been established. The objective of the Center is to provide a basis for advancing technologies involved in the planning, design, construction, and operation of buildings. The goal is to make these technologies cost effective, energy effective, and responsive to occupants' needs. Four ME Faculty are participating: Prof. James E. Woods will serve as director, and Profs. Thomas H. Kuehn, Howard N. Shapiro, and Ron M. Nelson will be lead investigators. They will be joined by other investigators from a wide range of disciplines throughout the university.

The ME Newsletter is published annually by the Department of Mechanical Engineering, Iowa State University, Ames, Iowa 50011.