Larry Brouwer – Designing Cleaner Diesel Engines

Larry Brouwer, BSME ’70, MSME ’72, is the Chief Engineer for Powertrain Systems and Applications, Research and Advanced Engineering for Ford Motor Company. While at CSU, Larry’s Senior Design project under the supervision of Dr. Harry Edwards was on oxides-of-nitrogen reduction. He then worked with Harry as an RA on a project funded by EPA. Larry says, “It was my ME education along with my research work on auto exhaust after treatment that paved the way for me to join Ford Motor Company.” He adds, “ME students around the US all studied the basics from the same books, but it was the research experience that really created the opportunity for me.”

Larry heads the Ford North American effort to identify and incorporate technologies for future applications of gas and diesel engines, focusing on design integration of the entire powertrain system. The group of 60 engineers is working to meet 2007 standards for oxides-of-nitrogen and soot emissions for heavy duty diesel engines and PZEV emissions for gasoline engines. The biggest challenge with potentially the biggest pay-off is the clean diesel R&D to reduce oxides-of-nitrogen and soot emissions to meet the Federal and California requirements and provide a 25-35% fuel economy improvement compared to gasoline engines. They also work with their Ford brands, such as the 2005 Aston Martin DB9 6.0L V12, to help improve the core competence of their engineers through the application of leading edge powertrain and controls technologies.

Larry advises students, “Study hard, grades do matter and get an MS degree or even a PhD.” Ford requires a 3.0 GPA for new engineering graduates. There is a need for PhD’s with education in mechanics, materials, combustion, controls, thermodynamics and heat transfer. Larry adds, “I have had an incredibly exciting career. Were it not for the Senior Design project and the MS work with Dr. Edwards, it would not have come about.”

Look for the complete story on our web site at www.engr.colostate.edu/depts/me/

Greetings from the Department Head
Dr. Allan T. Kirkpatrick

This Fall has seen continued strength in enrollments. With 110 Freshmen and 30 new graduate students, we now have 550 undergraduate students and 145 graduate students, both all time highs. Based on their high school record and test scores, this freshman class is the very best class at CSU. To better prepare students for the year-long senior design practicum, we are incorporating ASME student competitions into the junior and sophomore years. Last year, three sophomore teams competed in the regional ASME student project competition, and this spring both the sophomore and junior teams will be at the ASME regional student conference in Denver.

Last year, we received a record number of donations from alumni and friends. I thank you for your support. Your contributions fund the Senior Practicum, a value-added activity that would not be possible without your help. The Senior Practicum has given our students not only valuable engineering experience but also a good degree of national recognition.

Again, THANK YOU and have a great Fall.
Rudy Stanglmaier joins the Mechanical Engineering Faculty

Born of German parents in Mexico City, Rudy came to the U.S. at age 18 and attended Trinity University in San Antonio, TX, to pursue two Master's degrees, and the University of Texas at Austin for his PhD in 1997. He began his graduate work in structural mechanics and later switched to combustion and thermo-fluids.

After graduating, he worked at the Southwest Research Institute in San Antonio for five years until joining CSU in January 2003. His research focuses on engines, particularly clean diesel engines with emphasis on homogeneous charge compression ignition and water injection.

Rudy teaches ME 661, Internal Combustion Engines, which emphasizes engine fundamentals, research on emission reduction, and electronic control of engines. His research will include studies of fuels and lubrication for high performance engines that involve both vaporization and combustion experiments.

Rudy participates in our new Performance Engineering program with Drs. Radford and Fitzhorn, providing input concerning the engine aspects of that program. He also participates in the Engines and Energy Conversion (EECL) laboratory programs with Dr. Willson. Both programs were big attractions for coming to CSU. Funding for his research will come mainly from industry.

Rudy looks forward to teaching undergraduate and graduate courses and believes that teaching and research go hand-in-hand.

ME Senior Design Practicum Report — Spring Results

For complete results, see web site: www. engr. colostate. edu

<table>
<thead>
<tr>
<th>HPV team</th>
<th>National winners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Powered Vehicle (ASME) – Advisor, Hiroshi Sakurai</td>
<td></td>
</tr>
<tr>
<td>The Single Rider vehicle team finished: 1st Overall, 1st Design, 2nd Sprint, 1st Endurance. The Utility Vehicle team finished 2nd Overall, 1st Design, 4th Endurance. The team won the ASME National Championship for the third time in four years.</td>
<td></td>
</tr>
</tbody>
</table>

Walking Machine Challenge (SAE) – Advisor, Wade Troxell

The results for the CSU teams are: Top US entry and 5th Place overall.

Solar Wind Simulator Project – Advisor, John Williams

1st Place, CSU Engineering Days.

Clean Snowmobile Challenge (SAE) – Advisor, Bryan Willson

The competition was held in Michigan this year. The CSU team results are:

4th Place overall, Award for Best Design and Award for Best Oral Presentation.

Formula SAE Race Car – Advisors, Don Radford and Patrick Fitzhorn

2003 was primarily a re-building year for Formula SAE, with a completely new car design planned.

Calendar of Events

Alumni Receptions:
10/30 Grand Junction Holiday Inn
11/20 Boulder/Longmont
1/15 Colorado Springs
Mar. Denver
location & date yet to be determined

Student Competitions:
3/16-20 Clean Snowmobile 2004
4/23-25 Human Powered Vehicle
4/28-5/1 SAE Walking Machine
5/19-23 Formula SAE Race Car

ME / COE Events:
4/16 E-Days and ME Senior Design Practicum Project Demos
4/17 Spring Dinner & Dance, Lory Student Center Ballroom
Apr. MEAP Board Meeting
5/15 Undergraduate Commencement Time & Location TBD

Plan to join us for any of the following events. It's always nice to reconnect with former students.
The support of alumni and friends is critical to the success of our engineering education programs, such as the Senior Design Practicum. Please consider making a contribution to the Department to enhance the programs available to our students.

Colorado State University Mechanical Engineering Department

Enclosed is my/our check for a gift of:

☐ $1870  ☐ $750  ☐ $500  ☐ $250  ☐ $100  ☐ $50  ☐ $

(Payable to Colorado State University Foundation)

Name ______________________________

This gift is from  ☐ me  ☐ my spouse and me.

Spouse's Full Name ____________________

Address ______________________________

City, State, ZIP _______________________

Home Phone (_____) _________________ ☐ Home  ☐ Work

Email _________________________________

☐ Matching gift form is enclosed.

☐ Charge this gift of $ _________________ to my/our

☐ VISA  ☐ Mastercard

Card Number __________________________

Expires _____/____ (mm/yy)

Name on Card _________________________

Signature ______________________________

Please apply this gift to:

☐ $ _______ ME Senior Design Practicum (41083)

☐ $ _______ Other

(College, department, or fund name)

Please return this form with your gift to:

CSU Foundation, P.O. Box 1870, Fort Collins, CO  80522-1870.

41083/E0407

ME Faculty Honors, Awards and Accomplishments

For more information on these and other accomplishments of the ME Faculty, visit the ME web page at:  http://www.engr.colostate.edu/me/

C. Byron Winn - ME Emeritus Professor was recently named winner of the prestigious 2003 Charles Greeley Abbot Award in recognition of his more than 30 years of leadership in solar energy research and development.

Susan P. James - Chosen as one of five semifinalists and awarded $10,000 for the Wallace H. Coulter Award for Medical Innovation and Entrepreneurship at Georgia Tech.


David G. Alciatore - 2003 CSU Preston-Davis Teaching Award for instructional innovation.

Wade Troxell - named Senior Vice President of the ASME-International Council on Member Affairs (CMA) for a 3-year term beginning at the 2004 Summer Annual Meeting.


Paul Wilbur - was recently named a Fellow of ASME-International.

ME Department History is Being Documented

Since his retirement, Dr. Byron Winn has been working to document the history of our ME Department. He has presented much of the content in seminars during the past year. The document is nearly finished and will be available soon on a CD ROM. We will keep you posted on its availability.
Class Notes
If you have news to share in the Spring newsletter, please email Fred Smith at fred@engr.colostate.edu

Drew Crouch, ’84, ’87, is Vice President for Strategic Development at Ball Aerospace, and a recent addition to the Dean’s Advisory Council.

Geoff Wittich, ’98, is presently at Quest Communications, and recently earned his Masters Degree in Computer Information Technology.

Jeff Leget, ’93, is an IT Manager at (i)Structure in Broomfield, CO.

Joseph Marcus, ’61, recently received the Colorado State University 2003 Honor Alumnus Award. He is a retired Vice President of Production Operations for Lockheed Martin Space Systems Company.

Gerry Neuberger, ’68 is presently North American Oil and Gas Sales Manager for Solar Turbines in Houston, TX.

John Spiers, ’84, is Chief Technology Officer for LeftHand Networks in Boulder, and a recent addition to the Mechanical Engineering Advisory Panel.

Joel Buck, ’73, is a Vice President of Tri-State Generation and Transmission Association in Westminster.

Michael Clouthier, ’85, is Director of Business Development for HealthcTech, Inc in Golden.

Orval (Rusty) Powell, BSME ’97, is a Captain in the US Air Force, working as an Aeronautical Engineer at Ellsworth AFB and also doing some teaching.

Steve Girrens, PhD, ’86, was recently named Director of the Engineering Sciences and Applications Division at the Los Alamos National Laboratory.