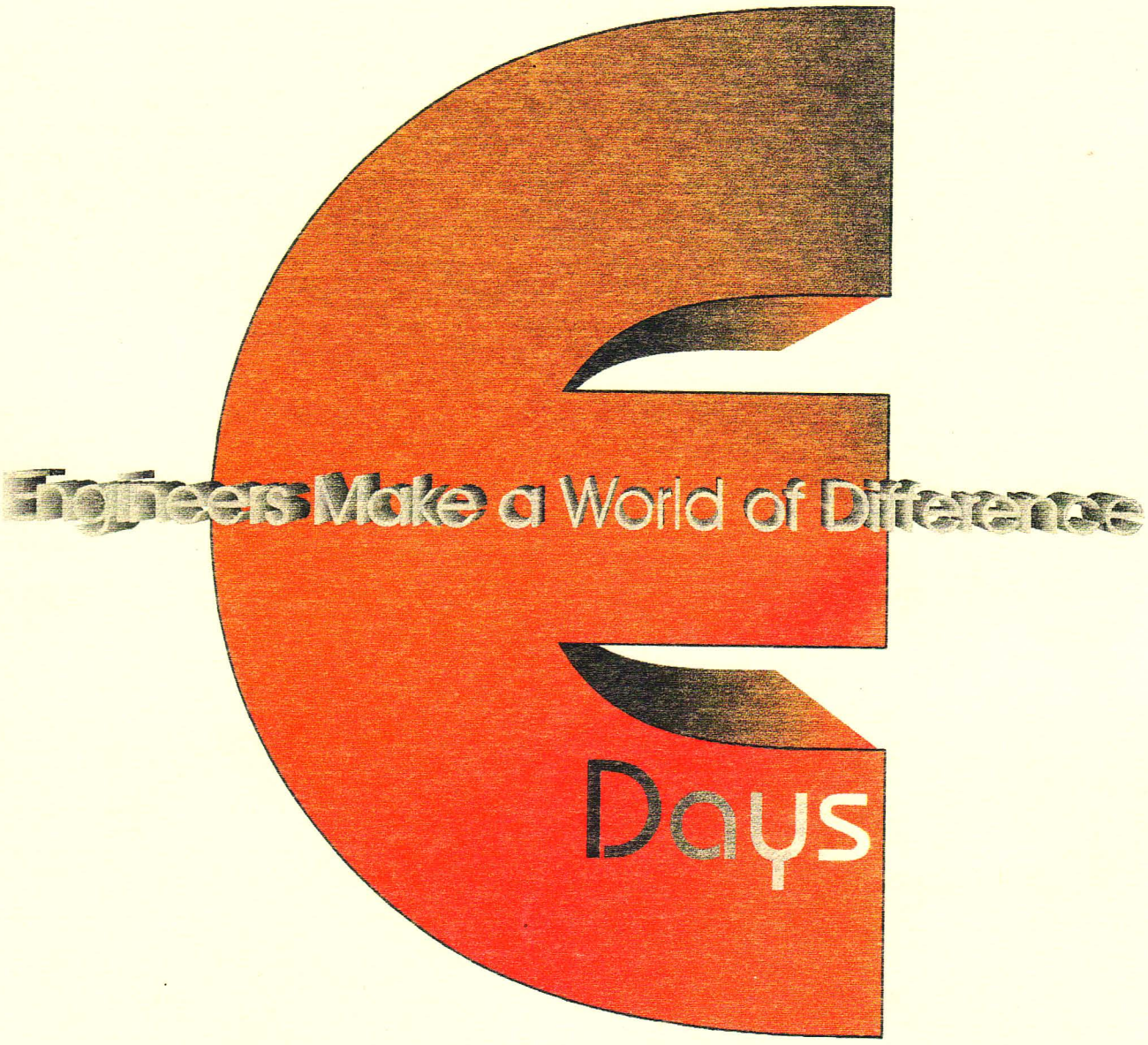
University of Louisville

Chemical ● Civil ● Electrical ● E.M.A.C.S.
Mechanical ● Industrial



Speed Scientific School

1997 Engineers' Days

Table of Contents

Speed School Student Council

Speed Scientific School
University of Louisville
Louisville, Kentucky 40292
(502) 852-6301

UNIVERSITY of LOUISVILLE

A Letter From the Speed School Student Council President

Dear Speed School Visitor:

Hello and thank you for joining us for the 66th annual Engineers' Days Celebration. Speed Scientific School has been participating in Engineers' Days for 66 years and for the last serveral years it has been run by the Speed School Student Council. We work on the planning and implementation of Engineers' Days all year round. The Vice–President of the SSSC Rebecca Schmitt is in charge of coordinating the event and the entire council works on this most rewarding project. We see Engineers' Days as a time to "toot our own horns" and show the community what kinds of research and work we do here at University of Louisville's engineering school. As with any urban university, Speed School thrives on the support of the community.

The exhibits that you will see are mostly from individual students and student groups. Some are exhibits for fun, and some are parts of research and thesis work that students are working on. Some of what you will see here will become reality in the production world. Speed Scientific School has certainly made its fair share of contributions to the world of technology. As you tour the exhibits, please visit our state of the art Rapid Prototyping Machine located in the Factory Automation Lab. This is just one example of how Speed School is ahead in the race of emerging technology in higher education.

Please feel free to ask questions, the exhibitors will be more than happy to answer your questions. We want you, as a part of the community, to be proud of what Speed Scientific School has accomplished. Please give us your comments on things you would like to see next year, as well as things that you liked and disliked. We want to continue the tradition of Engineers' Days as an educational program for the community of Louisville.

We, the Speed Student Council, would like you to stop by our office in the J. B. Speed Building (Room 105) if you have any questions about Speed. If you would like to purchase an Engineers' Days 1997 T–shirts or some other Speed School paraphernalia we can help you as well. If you are a student interested in attending Speed School, let us give you the student perspective on the education that is provided here. This event is entirely for you, the visitor, and we hope that you walk away from here with more knowledge of the world of engineering and with the University of Louisville Speed Scientific School.

Again, thank you and welcome to our campus.

Sincerely

Matt Ricketts, President
Speed School Student Council

Schedule of Events

Sunday, February 23, 1996

12:00 p.m.	**Opening Convocation**
	Keynote Speaker:
	Mr. John L. Huber, President
	Louisville Water Company
	Virginia Speed Auditorium, 100 J. B. Speed Hall
1:00 p.m. – 6:00 p.m.	**Exhibits**

Monday, February 24, 1996

9:00 a.m. – 2:00 p.m.	**Exhibits**

Acknowledgements

The Speed School Student Council would like to thank the following:

Mr. George Jageman
Exhibit judges
Mrs. Sheryl Meier
Societies & Students Who Presented Exhibits
Faculty & Staff for their Support
All Speed School Student Council Members

Engineers' Days Committee Chairpersons:

Advertising: Sarah Osborn
Awards: Nick Brashear &Rebecca Schmitt
Engineers' Ball: Chris Lange
Exhibits: Colleen Sullivan & Duc Nguyen
Speaker: Rebecca Schmitt
Judging: Colleen Sullivan
Programs: Greg Devine

Officers of the Speed School Student Council:

President: Matt Ricketts
Vice–President: Rebecca Schmitt
Director of Administration: Greg Devine
Director of Finance: Nick Brashear
Director of Student Affairs: Matt Suits
Director of Student Activities: Chris Lange
Director of Public Relations: Sarah Osborn
Director of Corporate & Alumni Relations: Mike Usrey
Director of Society Relations: Colleen Sullivan/Iskren Abdomerovic

1997 Engineers' Days Keynote Speaker

US Army Corps of Engineers
Louisville District
P.O. Box 59
Louisville, Kentucky 40201-0059
(502) 582-5601

George J. Jageman, Jr.

Chief

Construction Division

Biography

Mr. Jageman is a 24 year employee of the U.S. Army Corps of Engineers', Construction Division, Louisville District. He graduated from the University of Louisville in 1972 with a Masters Degree in Engineering. Aside from duties in the Louisville District Office, Mr. Jageman worked on both the Uniontown and Newburgh Dam projects until 1976. After serving two years as Civil Works Coordinator in the District Office, he moved to Indianapolis and served as Assistant Area Engineer at the Indiana Area Office where he administered to the EPA Construction Grants Program in the State of Indiana until 1982. With the realignment of military function Mr. Jageman transferred to the Wright-Patterson Area Office where he served as Resident Engineer for the Composite Medical Facility at Wright-Patterson AFB until June 1989. At that time he assumed responsibility as Area Engineer for the MILCON Program in the State of Ohio where he had served until August 1992. He then assumed his present position as Chief of Construction Division. Mr. Jageman is a registered Professional Engineer in the State of Kentucky and he was awarded the Engineer of the Year Award in 1986 at both District and Division levels.

Mr. Jageman, father of five, resides here in Louisville with two of his children, Gretchen and Jonathan. His daughter, Becky, also resides in Louisville. His daughter, Paula, is in the USMC stationed in California. His son, George, is in the US Army stationed in Germany.

Chemical Engineering

Chemical Engineers involve themselves in a great variety of activities in many areas of the business world. However, their objectives can be summed into one statement: upgrading materials in order to serve society. The Department of Chemical Engineering at Speed Scientific School is located in Ernst Hall. It is one of three departments at Speed School that offers a Ph.D. program. Its fine faculty is headed by Dr. James Watters. The students are represented by the Student Chapter of the American Institute of Chemical Engineers (AIChE). All visitors to Engineers' Days are invited to see the research the department is doing and to get a look at this unique version of engineering.

CHE–1 AICHE GOLF COURSE

Presented by Susan Waldeck, Kate Smothers, Haley Turner, Doglas Lime

The American Institute of Chemical Engineers (AIChE) is the professional society representing Chemical Engineering.

LOBBY OF ERNST HALL

CHE–2 DIGITAL CONTROL OF A MULTIVARIABLE SYSTEM

Presented by Jason Wise & Errol Flynn

An intellection program known as FIXDMACS is used to control a two–by–two multivariable system.

EH 101

CHE–3 INDUSTRIAL ASSESSMENT CENTER

Presented by Randall Hood, Jason Wise, Michael Burke, Matt Daly, Bryan Burke, Sarah Osborn, & Joe Lapoint

The Industrial Assessment Center (IAC), housed at the Speed School n the department of Chemical and Mechanical Engineering, proivdes manufacturing facilities. The center is funded by the US department of Energy. Teams of faculty and students visit plants within a nominal 150 mile radius of Louisville, and through observations, measurements, and discussions with plant personal, propose energy conservation and waste reduction opportunities to help increase plant productivity.

EH 306

CHE–4 AMERICAN INSTITUTE OF CHEMICAL ENGINEERING HOSPITALITY BOOTH

Presented by the 1996–199 school year AIChe officers.

The American Institute of Chemical Engineering is the professional society representing Chemical Engineering. the student AIChe chapter at the University of Louisville would like to invite you to coffee and donuts during the morning hours and other refreshments during the afternoon. Please join us.

LOBBY OF ERNST HALL

CHE–5 FROM NEWSPAPER TO SUGAR

Presented by Mohammad Shafie, Jane Rice, & Tracey Zoll

Cellulose is the major constituent of all plant material. Additionally, vast amounts of cellulose exist in municipal waste, agricultural wastes, and animal wastes. Cellulose is continually replenished by photosynthesis. Estimates place the amount of cellulose formed in the biosphere at 10^{11} tons per year. Its abundance coupled with its renewability renders cellulose to be the most promising feedstock for production of energy, food , and chemicals.

NAB 311

CHE–6 PLANT SAFETY

Presented by Ryan Nicol, Sean Uhl, Jeremy Hendren, Tim Paul, and Gary Breetz

Students will give an instructed safety lesson before giving a tour of a simulated chemical plant, located in Ernst Hall Room 100. The focus will be on personal safety equipment in chemical plats. This exhibit is sponsored by DuPont chemical company located in Louisville, KY.

EH AUDITORIUM

CHE–7 CHEMICAL ENGINEERING CONCEPTS IN THE MICRO BREWING PROCESS

Presented by Todd Suyomasa & Kevin R. Mizell

From the homebrewer to the professional brewmaster the method of developing this procedure remains the same.

EH 212

CHE–8 NOVEL REACTOR FOR THE PRODUCTION OF PHARMACEUTICALS

Presented by Eric Berson & Trupti Mane

A newly designed bioreactor is being tested for its ability to produce chemicals cheaper and more efficient than technology currently in use by the pharmaceutical industry.

NAB 312

CHE–9 PUMP LAB EXPERIMENT

Presented by Jason Rice, Bill White, & Russell Stroud

A detailed look at the workings of a centrifugal and axial pump and the characteristic curves with them.

EH 100

CHE–10 GLOBAL CLIMATE AND THE IMPLICATIONS FOR CHEMICAL ENGINEERING

Presented by Dr. Hugh Spencer & Rupa Yepuri

Global climate change is a reality. Many engineering designs are related to climate parametry. This exhibit concerns environments at risk and the implications for engineering practice as reason to design questions and regulatory requirements.

NAB 317

CHE–11 FLUIDIZATION MODEL

Presented by Carl Smith & Sarah Pastorino

Solids and gas mixed together to behave like a fluid. Come and see sand bubble.

EH 200

CHE–12 PREDICTING PRESSURE DROP ACROSS A PACKED COLUMN

Presented By Kate Smothers, Haley Turner, & Susan Waldeck

A column packed with Berl saddles is used or liquid–gas contact in counter–current flow. Pressure drop data are collected for various gas flow rates. The experimental data are compared with pressure drops calculated using the Erqun and Leva equations.

EH 100 & 200

CHE–12 HIDDEN HEAT IN MELTING ICE

Presented By Nadine McMackin, Sally Eaton, Andy Cochran & Jenny McKim

Discover why the temperature of ice remains constant while the melting process takes place.

EH 215

CHE–13 FLUID FLOW THROUGH PIPES

Presented By Andrew Ishmael & Casey Johnson

The effects of fluid velocity and pipe diameter on pressure.

EH 100

CHE–14 DISTILLATION IN A CHEMICAL PLANT

Presented By Sarah Osborn

This exhibit demonstrates the separation of methanol and water using a bubble cap distillation column. The exhibit also demonstrates an industrial application of distillation.

EH 100

CHE–15 STIRRED TANK EXPERIMENT

Presented by Tammy Lentz & Shauna Powell

Stirred tank Exhibit with heat exchange.

EH 200

Civil Engineering

Engineers are primarily responsible for planning the design and construction of all of the nation's constructed facilities. They plan, produce, and help operate the nation's transportation system. They must develop and conserve water resources. They also have a large role in designing the country's environmental protection in relation to water, air, and solid wastes. They are involved in housing and urban development, and the civil engineer studies the Earth's soils and oceans to better serve mankind.

Student Chapter_American Society of Civil Engineers: The ASCE Student Chapter is part of the professional society that unites all civil engineers throughout the United States through the advancement of knowledge in civil engineering and to make those contracts which benefit their own professional development. The student chapter is the first opportunity to show professional consciousness in civil engineering. The chapter offers opportunities to expand technical education and to become an involved engineering student.

CE–1 PHYSICAL MODELING OF LARGE SCALE VERTICAL FLOW AND SEDIMENT TRANSPORT AT FLOODWAY OBSTRUCTIONS

Presented by Tom Wright and Chris Lange.

Man–made structures such as highway embankments and levees obstruct flow on floodplains during flooding events. Streambed and bank erosion and sediment depositional patterns of the obstructed flow alters the charcteristics of floodplains and main channels with detrimental effects on the physical conditions of floodplain habitat.

WS 013C – HYDRAULICS LAB

CE–2 COMPUTATIONAL MODELING OF LARGE SCALE VERTICAL FLOW AND SEDIMENT TRANPORT AT FLOODWAY OBSTRUCTIONS

Presented by Paige Huber, Karen Modjeski, and Jason Canuel.

Research developed to identify and describe flow and sediment transport around floodplain obstructions using laboratory modeling techniques.

WS 003

CE–3 SUBCRITICAL TO SUPERCRITICAL FLOW : THE MECHANICS OF A HYDRAULIC JUMP

Presented by John Thompson,Katrina Metz, and Kimthuy Le.

In open–channel flow a supercritical flow change quickly back to a subcritical flow by passing through a hydraulic jump. The upstream flow is fast and shallow, and the downstream flow is slow and deep. Being extremely turbulent and agitated, the hydraulic jump is a very effective energy dissipator and is a feature of stilling–basin and spillway applications.

WS 013C

CE–4 ASCE BALSA BRIDGE COMPETITION

Presented by Steve Thibaudeau and Tara O'Leary, Andy Golemba

The balsa bridge competition allows high school and middle school students to get a hands on perspective of how important design is to civil engineering and the world in general. The students' bridges will be tested for ultimate strength, efficiency and also judged on aesthetics.

WS 013

CE–5 TESTING OF STEEL SPECIMENS UNDER HEAVY TENSION LOADS

Presented by Aaron Becker and Greg Devine.

Demonstrational testing of steel specimens unitl failure in a 60,000lb. testing machine.

WS 013

CE–6 1996 ASCE CONCRETE CANOE

Presented by ASCE.

The Annual ASCE Concrete Canoe Race is a competition of technical skill, oral and written presentations, and of course athletic ability. ASCE students are in the process of constructing this years entry and would like to share their innovative ideas with you.

WS CONSTRUCTION MATERIALS LAB

CE–7 SURVEYING DEMONSTRATION

Presented by The Corps of Engineers, Andy Lowe, and Brandon Brummett

An exhibition of the latest surveying equipment used at The Corps of the Engineers, and by Civil engineers everywhere.

WS Speed Bldg. above the Materials Lab

CE–8 ASCE INFORMATION BOOTH

Presented by Bryant Willard and Tim Talaga

Learn more about ASCE and how it helps students and professionals. Find out about all the exciting fields within Civil Engineering.

WS Speed Bldg. above the Materials Lab

Electrical Engineering

Electrical Engineers are concerned with creating the best possible ways to generate, store, transmit, control, and convert energy and information in the form of electricity. The electrical engineering students at Speed Scientific School can study microcomputer design, feedback control systems, and microwave and antenna computer engineering.

The Institute of Electrical and Electronics Engineers (IEEE) Student Branch of the University of Louisville was established in 1928. Since that time it has grown into one of the largest student branches in the world. It sponsors a wide range of activities that include both social and technical events. Every year students participate in the SOUTHEASTCON Regional Conference, and in the regional paper contest.

EE–1 TALKING TEMPERTURE SENSOR

Presented by Robert J. Recktenwald.

This is a temperture reading device that displays the current temperture and tells the temperture using a voice playback I.C. device. The sensor and the audio playback device are controlled by a Motorola M68HC11 Microcontroller.

WS 204

EE–2 AN ELECTRONIC CIRCUIT WHICH EXHIBITS CHAOS

Presented by Andrzej Lozowski and Damon Miller.

Simple physical systems, such as pendulums and water wheels are capable of complex behavior. Even though such systems are completely described by mathematical equations, they possess nonrandom but unpredictable behavior. This exhibit demonstrates a simple electronic circuit which displays chaotic behavior.

WS 219

EE–3 SMALL MOBILE ROBOT SYSTEM

Presented by Jessica Brown, Tony Hammond, David Kung, and Damian Smallwood.

An entry (in progress) into a head–to–head autonomous robot competition held at the 1997 IEEE Southeast at Virginia Tech.

NAB 310

EE–4 WATER TEMPERATURE CONTROL

Presented by Greg Stanforth.

LCD water temperature readout and control circuit using a Microchip PIC16c74A microcontroller.

WS 204

EE–5 MICROFABRICATION DESIGN

Presented by Douglas Hensel Jr.

Examples of microfabrication devices designed and/or produced at U of L. Explanation of the new clean-room facilities.

NAB 009

EE–6 A SURROUND SOUND DEMONSTRATION

Presented by Lee Hodapp.

A demonstration of how rear channel is decoded in Dolby Surround Sound.

WS 204

EE–7 DEMONSTRATION OF FILTER DESIGN

Presented by Matt Young, Ross Johnson, Michael McIntire.

A basic demonstration of analog filter design using operational amplifiers.

WS 214

EE–8 DEMONSTRATION OF VHDL

Presented by Babel Mathew and Vanessa Montes.

Demonstation of the design of logic gates using VHDL.

WS 225

EE–9 DIGITAL SIGNAL PROCESSING TECHNIQUES

Presented by Diana L. Guidry.

Digital Signal Processing involves many techniques that can be used in various Electrical Engineering areas. The list of applications of DSP is very lengthy. DSP can extend to an area known as Statistical Signal Processing which involves both Statistical and Proba-

bility techniques to predict the characteristics of Digital Data.

NAB 006

EE–10 DEMONSTRATION OF OPERATIONAL AMPLIFIER

Presented by Ralph Merah and Josh Wade.

Using an OP–Amp to demonstrate the filtering ability of certain signals.

WS 214

EE–11 BASICS OF COMMUNICATIONS

Presented by Jason Bryant and Brian Tyler.

Basic Communications techniques and circuit design. Demonstration of an AM receiver as well as other circuits used in signal detection.

NAB Communications Lab

EE–12 OBJECT RECOGNITION AND MOTION TRACKING USING COMPRESSED DATA

Presented by John D. Bethge.

With Image Compression becoming more common place different applications are needed to take advantage of the compression algorithm. One application Object recognition and motion tracking in a series of images.

NAB 006

EE–13 BASIC PATTERN OF RECOGNITIONS

Presented by E. David Jansing.

Using Pattern Recognition techniques it is possible to classify items according to their specific patterns. A demonstration of a classifier that can distinquish between different scanned letters or numbers will be shown. This is a direct application to OCR (Optical Character Recognition).

WS 225

EE–14 SCIBOARD

Presented by Mairaj Hussain.

To introduce new users to the public Bulliten Board SciBoard.

WS 223

EE–15 BASICS OF SPEECH PROCESSING

Presented by Brian Allen and Jay Beam.

The basics of speech/signal processing will be demonstrated by recording, processing, and playing back different speech signals. Intermediate steps will be displayed and explained using various Unix tools.

WS 225

EE–16 LG&E HIGH VOLTAGE SAFETY DEMONSTRATION

Presented by Bill Hardin and the IBEW local 2100

WS 108

Engineering Mathematics and Computer Science

The Engineering Mathematics and Computer Science (EMACS) department is one of the few in the nation to offer its students an engineering degree in the field of Computer Science. Students pursuing this degree will obtain a very thorough background in both hardware and software aspects of contemporary computer designs. Current research topics being undertaken by faculty and students include industrial robotics, microprocessor design, artificial intelligence, image processing, graphics, and simulation.

Students may also choose the Engineering Mathematics tract offered by the EMACS Department. These students specialize in the practical application of pure mathematics to model and solve engineering problems. Mechanical and civil engineering applications are emphasized in this course of study.

EMCS–1 LINUX, WHY IT SHOULD BE YOU!

Presented by S+ Linux Users Group.

Unix, an extremely powerful operating system is typically available only on expensive high–end workstations. Linux, a freely available operating system for X86 and PowerPC processors allows workstation capabilities on your home PC. Linux users benefit from a wide range of free software, powerful software development and WWW tools, true pre–emptive multi–tasking/multi–threading, and built–in multi–user networking capabilities.

VOGT CAE LAB

EMCS–2 CONTROL SIMULATION USING MAPLE

Presented by Troy Howe

The computer algebra system Maple can find exact solutions to differential equations such as those that arise in chemical, electrical, or industrial control. A Maple procedure was written implementing a numerical control system simulator. By examining the accuracy of this procedure for simulated control problems that Maple can solve, one can learn to use this numerical procedure with confidence when Maple's analytical and numerical solvers fail.

JB 002

Industrial Engineering

Industrial Engineers combine science and technical knowledge with human sciences to design, plan, or analyze systems that involve people, materials, money, energy, equipment, and other resources. Industrial engineers work with the staffs of research and development, accounting, other engineering disciplines, maintenance, personnel, and production to increase organizational productivity, reduce health care costs, conserve energy, develop public transportation systems, and improve industrial safety conditions. In every area, the industrial engineer's challenge is to design solutions that are people–oriented.

The Industrial Engineering Department's teaching laboratories meet current program needs and are constantly being improved. Equipment and experiments are geared to provide instruction in the areas of production system design, work methods and measurement, human factors engineering, manufacturing processes, and digital computer applications in industrial engineering and operations research.

The University of Louisville's Engineering Department is the only one in the Commonwealth of Kentucky. It also has one of the three Ph.D. programs offered by Speed School faculty.

The University of Louisville Chapter of the Institute for Industrial Engineers (IIE), an international professional society for industrial engineers, is a very active student organization. In past years, student members have attended conferences and presented technical papers at other institutions such as General Motors Institute, Ohio State University, West Virginia University, and the State University of New York at Buffalo.

IE–1 UNITED PARCEL SERVICE (UPS ISPS WORK METHODS STUDY)

Presented By William Miller & Fikre Kassie

Work Methods Study was performed to set the minimum acceptable requirement for the ISPS Dept. at the United parcel Service.

FAL LAB

IE–2 ANALOG FACILITY LOCATION MODEL

Presented by Brandon Clayton & Matt Mersch

The analog fascility location model is a physical rerepresentation f the mathematical procedure for determining the optimal location for a new fascility, based on the importance of the existing facilities that it will be interacting with

SH 102

IE–3 EGG DROP CONTEST

Presented By the Institute of Industrial Engineers

This event is the 14th annual contest sponsored by the Institute of Industrial Engineers Student Chapter #902. It is designed to provide local area high school students an opportunity to combine their knowledge of physics and mechanics with imagination to "build the better egg package" and every year the results are ingenious. The object of the contest is to create a structure that will protect an egg from impact when dropped from increasing heights. Cash prize money up to $50 is offered to the top three designers.

STEPS OF JB SPEED BUILDING

IE–4 FOOD BOOTH

Presented by the Institute of Industrial Engineers

Refreshments available throughout Sunday and Monday.

JB SPEED LOBBY

Mechanical Engineering

The profession of Mechanical Engineering is a major contributor to the beneficial effects of technology on our lifestyles. Many people have little understanding of its mission and objectives. Mechanical Engineers are creative, broadly educated, scientifically minded, computer proficient, and socially sensitive.

The Mechanical Engineering educational program provides students with a balanced engineering education emphasizing studies fundamental to a wide variety of technical areas. Focusing on full development of the students' technical proficiencies in solving modern engineering problems, the program also enhances the students' respect for and understanding of the social implications and consequences of technical decisions. The program fosters the students' self–confidence and sense of responsibility in engineering work.

The curriculum includes classroom instruction, research, applications through laboratory work and the co–operative education program, along with the opportunity to participate in professional technical engineering societies. The students' education is not limited to technical studies but also includes the arts of effective written and oral communication, organization, and methods for working well with others.

The Mechanical Engineering student has access to some of the most modern equipment and software in the Dahlem Computer–Aided Design Lab. Several finite element analysis and simulation software packages utilizing color graphics and animated graphics terminals provide students the valuable experience with state–of–the–art technology and analysis methods.

The American Society of Mechanical Engineers (ASME) and the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Student Chapters provide students with a wide variety of opportunities. Students gain experience in leadership, are encouraged to present papers and new ideas, and are exposed to many aspects of the professional engineering field. ASME sponsors a range of activities including films, plant tours, attendance at professional chapter meetings, participating in regional ASME conventions, and participation in Engineers' Days.

ME–1 PHI TAU SIGMA MECHANICAL ENGINEERING HONOR SOCIETY

Presented by Members of Phi Tau Sigma.

Phi Tau Sigma is an honor which performs community service and provides tutoring for undergraduate mechanical engineering students.

SH 100

ME–2 AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS

Presented by Members of ASHRAE.

Engineers keep your home cool in the summer and warm in the winter. Learn about designing HVAC systems and how they work.

SH 100

ME–3 AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Presented by Members of ASME.

ASME is the professional organization of mechanical engineers. The student section sponsors meetings, plant tours, conferences, and contests for mechanical engineering students.

SH 100

ME–4 SOCIETY OF AUTOMOTIVE ENGINEERS

Presented by Members of SAE.

The Society of Automotive Engineers (SAE) will be displaying the career possibilities in the automotive field. Student design competitions sponsored by SAE will be discussed and on display.

SH 108

ME–5 MULTI–LIFT

Presented by Chris Sprigler.

The goal of this design project is to provide Frazier Rehab Center with a lift assit the therapist in the transfer of patients from their whellchair to the back seat of a van.

SH 103

ME–6 PEDIATRIC BATHING UNIT

Presented by Erik Buehner.

The pediatric bathing unit is a portable bathing device designed for Frazier Rehab that will enable a therapist to bathe a child approximately 50 pounds in weight.

SH 103

ME–7 WHEELCHAIR PROPULSION MECHANISM

Presented by Adam O'Daniel.

Hand–cranked propulsion device for pediatric wheelchair.

SH 103

ME–8 PEDIATRIC VIDEOFLUROSCOPY CHAIR

Presented by Jeff Schutte.

The pediatric videofluroscopy chair is a portable chair used by speech pathologists at Frazier Rehab to align children for the barium swallow procedure. This procedure provides the therapist with realtime X–ray of the children's swallow.

SH 103

ME–9 NEUROFACILITATION SLEEVE

Presented by Marcus Logan.

Neurofacilitation Sleeve – vibratory device which can be used to provide muscle stimulation.

SH 103

ME–10 AIR FLOW MEASUREMENT TECHNIQUES

Presented by Mechanical Engineering Students.

Air flow measuremnets can be taken using seeral methods. This exhibit displays three common devices, an orifice, velomeeter, and Pitot Tubes.

SH 104

ME–11 COMMUNICATION INTERFACE BOX

Presented by Chad Pruitt.

The goal of this design project is to provide Frazier Rehab Center Speech Therapy Department with an interactive device that will aid in the assesment as well as the communication advancement of the patients, through the use of visual, auditory, and tactile stimuli.

SH 103

ME–12 MR. PIPES REMOTE ACCESS PANEL

Presented by Eric Taylor.

A remote access panel with variable sensitivity buttons that will allow very young children (14 months) and wheel chair bound children of various ages to benefit from Mr. Pipes therapy device at Frazier Rehab Center.

SH 100

ME–13 ADAPTIVE VAN BENCH

Presented by Matt Daly.

Design of an adaptive passenger restraint for physivally impaired passengers.

SH 100

ME–14 WALKER FOR GAIT ANALYSIS

Presented by Rick Decker.

This is a custom designed walker that is to be used by the gait and Biomechanics Laboratory at the Frazier Rehab Center in Louisville, Kentucky.

SH 100

ME –15 FLOW METER CALIBRATION

Presented by Mechanical Engineering Students.

Flow of water through a pipe can be measured using a venturi meter, orifice plate, and a variable area meter. See how these meters operate.

SH 104

ME –16 THRUST AND MOTION : A ROCKET PROPELLED BAR

Presented by Mechanical Engineering Students.

Modern electronic measurement systems can measure static and dynamic variables. A rocket propelled bar follows the basics laws of motion. Force transducers, accelerometers, and potentiometers are used to calculate the total impulse, average thrust, work, and displacement.

SH 104

ME–17 OPERATION OF A CENTRIFUGAL PUMP

Presented by Mechanical Engineering Students.

Study the characteristics used to select centrifugal pumps. These characteristics include flow rate, torgue, pressure, velocity, which are used to prepare pump curves.

SH 104

ME–18 VIBRATIONS EXPERIMENT

Presented by Mechanical Engineering Students.

Vibration occurs in the atomic structure, in electrical circuits, in our hearts, in our bodies when we shiver, in the clapper of a bell, and in mechanical structures. One of the most renowned vibrating structures is that of the Tacoma Narrows Bridge in Washington State which collapsed due to vibrations developed during a steady wind several months after completion.

SH 108

ME–19 GLASS INTERNAL COMBUSTION ENGINE

Presented by Mechanical Engineering Students.

View the piston movement in an internal combustion engine and see a cutaway Ford four–cylinder engine.

SH 108

ME–20 MATERIAL TEST SYSTEM (MTS) MACHINE

Presented by Mechanical Engineering Students

The MTS machine will determine the yield strength, ultimate strength, stress–strain curve, and percentage elongation using the test link software of a round tensile speciman.

SH 108

ME–21 INVERTED PENDULUM

Presented by Mechanical Engineering Students.

The inverted pendulum is a unique mechanism which provides vivid demonstrations of controls. This mechanism requires a feedback control for stability of the pendulum and horizontal sliding bar.

SH 108

ME–22 PHOTOELASTIC MATERIAL TEST

Presented by Mechanical Engineering Students.

A photoelastic material is bound to a speciman which is then subjected to a tensile or compressive strain. A polariscope is then used to view the stress field of the speciman by reflecting polarized light through the photoelastic coating. The color patterns can be used to determine the states of stress.

SH 108

ME–23 EXPERIMENTAL DETERMINATION OF NATURAL FREQUENCIES AND MODES

Presented by Matt Sanders.

Determine natural frequencies and modes of a free-free beam by experimental methods.

SH 108

ME–24 WRIST JOINT MECHANICS

Presented by Barbara Volmer.

Current literature suggests that the only function of the distal radioulna is facilitating forearm rotation. The purpose of this study is to prove that the distal radioulna joint (DRUJ) is important in the distribution and transmission of load applied perpendicular to the wrist. If this is true, the DRUJ is important for lifting weight against gravity.

SH 100

ME–25 DYNAMIC SIMULATION OF A HUMAN SHOULDER

Presented by Erik L. Ramsey.

Development of a shooting jack system to simulate the response of human shoulder for firearm quality control testing.freefree beam by experimental methods.

SH 108

ME–26 OFF–ROAD VEHICLE DESIGN

Presented by Carlton Bale, Brian Fields, Charles Haskins, and Jeff Schutte.

Display of Computer Aided Design of an off–road vehicle recreational vehicle. Designing a racing vehicle for Society of Automotive competion will be discussed.

SH 108

ME–27 DESIGN OF A HORIZONTAL BORING TOOL FOR GAS PIPELINE

Presented by Carlton Bale.

A funded research project to a design and prototype a pneumatic boring tool. Sponsored by Columbia Gas Distribution Company.

SH 108

ME–28 LOCATING BONY FEET STRUCTURE USING PLANTAR STRESS MEASUREMENTS

Presented by Paul Newsom.

Plantar stress measurement can be used to analyze bone structure problems in high risk patients. This project is designed to help automate these measurements to simplify its use.

SH 100

ME–29 ONE WHEEL STAND ON SULKY ATTACHMENT FOR MEDIUM SIZED COMMERCIAL BULK MOWERS

Presented by Ken Lininger.

In an effort to increase market share of the stand–on sulkies, Jungle Jim's Accessory Products, Inc., will introduce a one wheel version of its two wheel stand–on sulky. This one wheel version will be more compact, agile, and cost efficient than the current two wheel model.

SH 108

ME–30 WRIST JOINT MECHANICS

Presented by Barbara Volmer.

Current literature suggests that the only function of the distal radioulna is facilitating forearm rotation. The purpose of this study is to prove that the distal radioulna joint (DRUJ) is important in the distribution and transmission of load applied perpendicular to the wrist. If this is true, the DRUJ is important for lifting weight against gravity.

SH 100

ME–31 RUBBER BAND RACER CONTEST

Presented by Jason Fahey and Mechanical Engineering Students.

A contest which challenges high school students to design a rubber band powered vehicle that can cover a distance of 15 feet.

SH 001

ME–32 CUMMINS ENGINE CORPORATE DISPLAY

Presented by Cummin's Engine Employees.

Cummin's Engine designs and builds a wide variety of heavy duty diesel engines. See a wide variety of their products on display including the Cummin's diesel powered Dodge Ram and meet the people who make the products.

SH 108

ME–33 REMINGTON ARMS TECHNICAL CENTER

Presented by Employees of Remington Arms Technical Center.

Remington Arms Company is one of the world's leading manufacturers of sporting firearms and ammunition. Remington will be presenting an overview of career fields at the new Research and Design Center in Elizabethtown, KY.

SH 108

ME–34 DESIGN SOFTWARE DISPLAY

Presented by Mechanical Engineering Students.

Computers can decrease the time required to design new products. See how this software can allow students to quickly test design changes for failure.

SH 213

ME–35 COME SURF THE INTERNET

Presented by Mechanical Engineering Students.

View presentations on how to use the internet. Presentations are at the bottom of each hour and last 15 minutes. The PC's are available for you to surf the net all day. Come see what is on the information highway for FREE!

SH 213

1997 Career Fair and Corporate Exposition

The 1997 Career Fair & Corporate Exposition is a new addition to Speed School's Engineers' Days. Prestigious companies from around the Commonwealth and the U. S. will have representatives interspersed throughout the engineering campus to recruit U of L's top notch engineering students for promising future positions. These companies will have booths set up with Human Relations and Engineering representatives on hand to accept applications and speak with students on the benefits of working for their companies. All students are encouraged to "put their best foot forward" when presenting exhibits and speaking with representatives, after all, THESE COMPANIES ARE HERE TO RECRUIT YOU!!!

AEROTEK

Representatives: Jason Webster, either Bill Cheatham and Tyler Long
9410 Bunsen Parkway, Louisville, KY
40243
Looking for CE, ME, EE, EMACS, IE, ME
Recruiting

Aerotek specializes in providing technical personnel to large companies on a contract or a contract to full–time basis.

JB Speed Room 107

UNITED PARCEL SERVICE

Representatives: George Willis and Joe Sanford
1400 N. Hurstbourne Parkway, Louisville, KY
40223
Looking for EMACS and IE
Recruiting

UPS is the world's leader in package distribution and logistics services. Please visit us and discuss the many technical opportunities available at Louisville's largest employer.

JB Speed Room 107

SAMTEC

Representatives: Mark Duffy and Julie Cook
810 Progress, New Albany, IN
47150
Looking for ME

Recruiting and Exhibiting

Samtec will have a display of their products, samples of their products and literature.

Sackett Hall Room 108

COPELAND

Representatives: Keith Thomas and company
1675 West Campbell Road, Sidney, OH
45365
Looking for EE and ME
Recruiting and exhibiting

The world's leader in the design and manufacturing of compressors for the air conditioning and refrigeration industry through the use of leading edge technology and world class manufacturing facilities. Subsidiary of Emerson Electric.

Sackett Hall Room 108

TWINSTAR SEMICONDUCTOR INC.

Representatives: Richie Wolfe
500 West Renner Road, Richardson, TX
75080
Looking for CHE, EE and ME
Recruiting and exhibiting

Twinstar is one of the newest high technology semiconductor wafer fabrication facilities in the world, manufacturing dynamic random access memory (DRAMS) chips for the electronic industry.

Ernest Hall Room 110

LUCKETT & FARLEY

Representatives: Atul Mashruwala
215 West Brekinridge Street, Louisville, KY
40203–2272
Looking for CE, EE and ME
Recruiting and exhibiting

Luckett and Farley is a 130+ person, multi–discipline firm including architecture, electrical, structural and civil engineering, program/construction management, and interior design. We serve a variety of sectors, including healthcare, industrial, automotive, education, commercial, corrections, and government.

William S. Speed Building Room 113

VILTER MANUFACTURING CORPORATION

Representatives: Colleen Casey and Richard Rademacher
230 Northland Blvd. Suite 334, Cincinnati, OH 45246
5555 S. Packard Ave., Cudahy, WI 53110
Looking for ME
Recruiting

Since 1867, Vilter Manufacturing Corporation has supplied top quality refrigeration and heat exchange products to worldwide customers.

Sackett Hall Room 208

AMERICAN PRINTING HOUSE FOR THE BLIND

Representatives: Mustapha Debbabi
1839 Frankfort Ave., Louisville, KY 40206
Looking for IE
Recruiting and exhibiting

Manufacturing company dealing with educational and instructional tools for the blind or low vision users. Example: braille products, talking books, enlarged type, and tangible items.

Factory Automation Lab

ROHM AND HAAS

Representatives: Eddie Cannon
4300 Campground Rd., Louisville, KY 40216
Looking for CHE, EE, and ME
Recruiting and exhibiting

Manufacturer of specialty chemical products. The plant has 700 employees and is headquartered in Louisville's rubbertown district.

Ernst Hall Room 110

LESCO DESIGN AND MFG. CO. INC.

Representatives: Richard Downing and Brad Hillerich
1120 Ft. Pickens Rd., Louisville, KY 40031
Looking for ME
Recruiting

Material Handling company.

Sackett Hall Room 208

CUMMINS ENGINE COMPANY

Representatives: David King and Jim Munt
PO Box 3005, Columbus, IN 47201
Looking for EE, EMACS, and ME
Recruiting and Exhibiting

A display of Cummins products and the various disciplines of engineering required to develop our products and bring them to production.

Factory Automation Lab

C. LEE COOK

Representatives: Don York
916 S. 8th St., Louisville, KY 40203
Looking for ME
Recruiting

Company display will be available.

Sackett Hall Room 208

JEFFBOAT

Representatives: Ron Barauskas
1030 E. Market St., Jeffersonville, IN 47130
Looking for EE, IE, and ME
Recruiting and Exhibiting

The nation's largest shipyard, builds barges, towboats, etc.

Factory Automation Lab

U.S. ARMY CORPS OF ENGINEERS

Representatives: Joe Gates, Anthony Huffines, and Phil Hasselwander
600 Dr. Martin Luther King Jr. Pl., Louisville, KY 40202
Looking for CE
Exhibiting

The Corps of Engineers presents the modular design system – a computer aided design and cost estimating tool for the next century.

William S. Speed Bldg. Room 113

LEXMARK INTERNATIONAL INC.

Representatives: Luis Veiga
740 New Circle Rd, Lexington, KY 40511
Looking for CHE, EE, EMACS, IE, ME
Recruiting and Exhibiting.

Manufacture, market, and develop laser and ink jet printers.

Factory Automation Lab

GENERAL ELECTRIC APPLIANCES (GEA)

Representatives: Angie Ward and Donna Luckett
Monogram Hall, AP90, Louisville, KY
40225
Looking for CHE, EE, EMACS, IE, and ME
Recruiting and Exhibiting

General Electric Appliances, a forerunner in the appliance industry, has a vision. "One Team... Better and Faster than anybody else in the world!" GEA is transforming itself to reach the ambitious goal of Six Sigma Quality in everything it does. Opportunities abound for the best and the brightest. General Electric Appliances is a division of General Electric Company. .

Factory Automation Lab

Non–Departmental Exhibits

Speed School Lottery

Presented By James Greenwell & Alex Charland

Play the lottery and find out why there is not much chance to win. Winners will receive engineer's days t–shirt.

JB SPEED LOBBY

Professional Organization: KSPE

Presented By Charles hicks, Ray Rush, & Keith Pataluna

The Kentucky Society of Professional Engineers is a multidisipline engineering society that supports the cause of professional work practices and ethics in engineering

JB SPEED LOBBY

The Legacy of African–American Engineers, Scientists, and Inventors

Presented by the national Society of Black Engineers

A brief history of African–American engineers, scientists and inventors, who made significant contributions to society.

JB SPEED LOBBY

Triangle Fraternity Information Booth

Presented By the brothers of triangle Fraternity

Triangle Fraternity is a recognized Student Organization that is an active member of the Greek System. We are a Fraternity of Engineers, Architects, and Scientists. if you would like some information on the gentlemen's fraternity that stress academics and brotherhood, please stop by out information table.

JB SPEED LOBBY

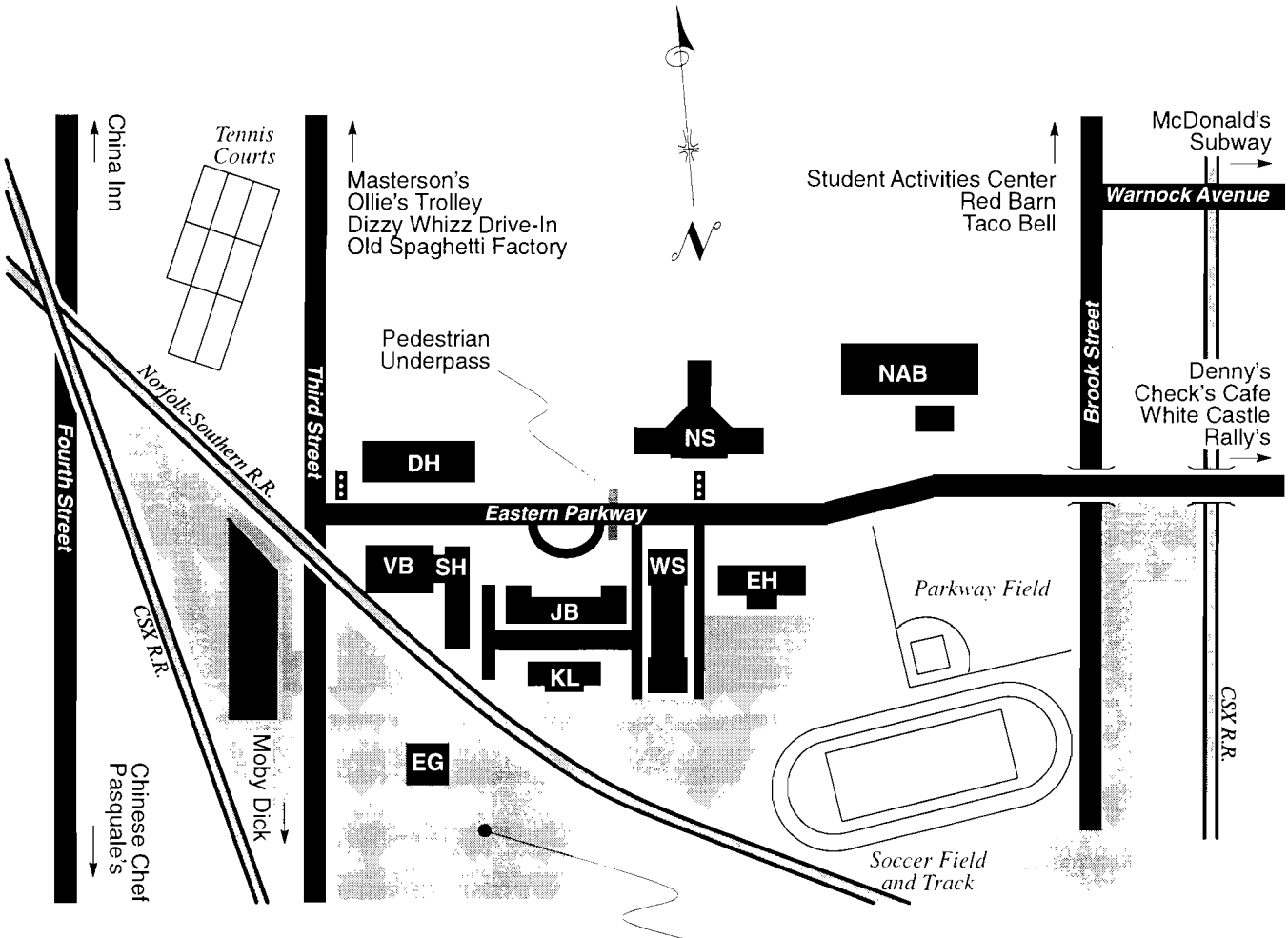
Speed School Student Council Welcome Booth

Presented by Speed School Student Council

The Speed School Student Council Provides many services for Speed School and the University of Louisville. If you would like some information about student council or speed scientific school in general, please feel free to stop by

JB SPEED LOBBY

Map of Speed Scientific School Campus



map by Darren S. Embry, updated by Greg Devine

Shaded areas represent Student Parking ("green spaces")

Guide to Buildings

DH	Dougherty Hall
EG	Engineering Graphics Building
EH	Ernst Hall
JB	J.B. Speed Hall
KL	Laura Kersey Library
NS	Natural Science Building
SH	Sackett Hall
VB	Henry Vogt Building
WS	W.S. Speed Hall
NAB	New Academic Building

Engineers' Days Questionnaire

Please fill out this questionnaire so that we can improve Engineers' Days at the University of Louisville Speed Scientific School. This may be returned to any one of the boxes located bear the front entrances to each building, to the office of the Speed School Student Council, located at 105 J. B. Speed hall, or mailed to:

Speed School Student Council
Speed Scientific School
University of Louisville
Louisville, Kentucky 40292

You may also submit your answers and comments via Internet electronic mail to:
sssc@starbase.spd.louisville.edu.

That you very much for your help.

Occupation:

Employer/School:

Sex (circle one): Male Female

Age group (circle one): 12–17 18–25 26–40 41–65 Over 65

How did you hear about Engineers' Days? (Circle all that apply.)

high school	Courier-Journal
family/friends	Business First
work	Radio
	Other:

Did you participate in any of the High School Contests? Yes No

If yes, which ones? (circle all that apply.)

ACM Creative Programming Contest	IEEE Solenoid Cannon Competition
IIE Egg Drop Contest	ASME Catapult Contest
AIChe Cooler Contest	ASCE Bridge–Building Contest
Boat Building Contest	

On a scale of 1 to 10, rate **the overall quality of the displays and exhibits.**

(excellent) 10 9 8 7 6 5 4 3 2 1 (poor)

On a scale of 1 to 10, rate **your overall impression of Engineers' Days.**

(excellent) 10 9 8 7 6 5 4 3 2 1 (poor)

Your Comments and suggestions: