



12-2003

33rd Conference on Senior Engineering Design

College of Engineering and Applied Sciences

Follow this and additional works at: http://scholarworks.wmich.edu/engineer_design_projects

 Part of the [Engineering Commons](#)

WMU ScholarWorks Citation

College of Engineering and Applied Sciences, "33rd Conference on Senior Engineering Design" (2003). *Senior Engineering Design Conference*. 31.

http://scholarworks.wmich.edu/engineer_design_projects/31

This Conference Program is brought to you for free and open access by the College of Engineering and Applied Sciences at ScholarWorks at WMU. It has been accepted for inclusion in Senior Engineering Design Conference by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.



Senior Design Project

The 33rd Conference on Senior Engineering Design Projects

You are invited to attend the thirty-second Conference on Senior Engineering Design Projects. The conference will be held from 9 a.m. to 3:30 p.m., **Tuesday, December 2, 2003** at the Bernhard Center on the campus of Western Michigan University. The College of Engineering and Applied Sciences sponsors the conference to showcase the work of its graduating seniors, who are required to complete a capstone project that puts into practice what they have learned. Many of the projects are sponsored by business and industry.

The conference is **free** and open to the public. You are welcome to attend all or part of the day's events. Reservations are not necessary.

High school and community college teachers are encouraged to bring students to the conference. Buses can drop off passengers in the circular drive in front of the Bernhard Center and then park in the lot in front of Hoekje Hall.

([See map](#) - take North Dormitory Road. Hoekje is #65 on the map.)

Teachers who cannot accompany their students to the conference may ask their students to sign in and out at the information table in the lobby on the second floor of the Bernhard Center. Sign-in sheets will be mailed to teachers the day after the conference.

Parking is available in the ramp near the Bernhard Center. Please park in metered spaces. There is a charge for parking. Meters accept quarters only.

Presentations begin on the hour and half hour. Please do not enter a room after a presentation has begun.

Session locations, starting times for project descriptions:

Civil and Construction Engineering	Brown and Gold	9:00am to 10:00am
Electrical and Computer Engineering	208	9:00am to 1:30pm
Industrial and Manufacturing Engineering	209	10:00am to 2:30pm
Mechanical and Aeronautical Engineering A-1	210	9:00am to 3:00pm
Mechanical and Aeronautical Engineering B-1	Faculty Lounge	9:00am to 1:00pm
Paper Engineering, Chemical Engineering, and Imaging	213	9:00am to 10:00am

Refreshments will be available in the lobby from 8:30 a.m. to 10:30 a.m.

A **lunch** break is scheduled from noon to 1 p.m.

For more information about the conference, call [Cathy Smith](#) at (269) 276-3247.

The 33rd Conference on Senior Engineering Design Projects

CCE = Civil and Construction Engineering

ECE =Electrical and Computer Engineering

IME = Industrial and Manufacturing Engineering

MAE = Mechanical and Aeronautical Engineering

PCI = Paper Engineering, Chemical Engineering, and Imaging

FL= Faculty Lounge

B&G= Brown and Gold Room

Time	Room	Dept.	Topic
9:00AM	B&G	CCE	Township Ice Arena Construction Project
	208	ECE	Autonomous Navigating Robot, Team 5
	210	MAE A-I	Front Loading Washing Machine Balance Ring
	FL	MAE B-I	Automation of a Force versus Displacement Fixture
	213	PCI	Effect of Wet End Chemistry on Dryer Efficiencies in a Through Air Dryer
9:30AM	B&G	CCE	Public Works Facility
	208	ECE	Autonomous Navigating Robot, Team 2
	210	MAE A-I	Design and Analysis of Propeller Testing Apparatus
	FL	MAE B-I	Six-Axis Vibration Analysis of a Product Test Fixture
	213	PCI	Improving the OCC (Old Corrugated Containers) Recycling Stream
10:00AM	B&G	CCE	Comprehensive Construction Management System for a Multi-Level Office Building
	208	ECE	Autonomous Navigating Robot, Team 1
	209	IME	One Piece Flow on Manufacturing Line
	210	MAE A-I	Automotive Valvetrain with Mechanical Lift-Loss Compliance Feature
	FL	MAE B-I	Pump Shaft Seal Design
	213	PCI	The Effect of Lubricants in Coating
10:30AM	208	ECE	Autonomous Navigating Robot, Team 4
	209	IME	Utilization and Scheduling of Hospital Staff
	210	MAE A-I	Collapsible Steering Column for Use in Automotive Racing Applications
	FL	MAE B-I	The Rope Wrangler-A Mechanical Ski Rope Reel
11:00AM	208	ECE	Autonomous Navigating Robot, Team 3
	209	IME	Facility Design Optimization

	210	MAE A-I	High Performance Land Speed Vehicle Engine Design
	FL	MAE B-I	Residential Washing Device Detergent Dispenser
11:30AM	208	ECE	Generating and Receiving Constellation Modulated Signals
	209	IME	Parametric 3-D Model of the Human Spine for Orthopedic Studies
	210	MAE A-I	Optimization of a Dishwasher Spray Arm
	FL	MAE B-I	Automated Mixing of Saltwater Fish Tank
1:00PM	208	ECE	Fault Detection and User-Assisted Recovery in an Appliance
	209	IME	The Study of Factors Affecting Core Integrity
	210	MAE A-I	Addition of Pressure Control to a Pool Boiling Vessel
	FL	MAE B-I	Optimization of Foil Bearings
1:30PM	208	ECE	Test Unit for a Self-Dimming Welding Helmet Visor
	209	IME	Four-Post Ride Simulator
	210	MAE A-I	Combustion Throttle Design for All-Terrain Vehicles
2:00PM	209	IME	Design and Fabrication of a Hydraulic Riveter
	210	MAE A-I	Residential Washing Device Feed System
2:30PM	209	IME	Restaurant Point-of Purchase System
	210	MAE A-I	Seatbelt Pretensioner Noise and Vibration Test Fixture
3:00PM	210	MAE A-I	Engine Dynamometer for Gas Powered Remote Controlled Car

The College of Engineering and Applied Sciences is grateful to these sponsors that have provided or cooperated in Senior Engineering Design Projects being presented in December 2003. If you have a project for our students or if you would like more information, please call Cathy Smith at (269) 276-3247.

The Black Swan Restaurant
 DENSO Manufacturing MI, Inc.
 FEMA Corporation
 JDM Engineering and Design
 National Science Foundation, Grant No. 0088158
 Skanska USA Building, Inc.
 Walbridge Aldinger Co.

BREED Technologies
 Eaton Corporation EAMO
 International Paper
 Dave Lamb Heating & Air Conditioning
 Safari Technologies, Inc.
 Stryker Medical