



4-13-2004

34th Conference on Senior Engineering Design Projects

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, "34th Conference on Senior Engineering Design Projects" (2004). *Senior Engineering Design Conference*. 29.

http://scholarworks.wmich.edu/engineer_design_projects/29

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 34th 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, April 13, 2004** at the College of Engineering and Applied Sciences on the Parkview 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 College Circle in front of the building and then park in lot P2.

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 first floor of the college. Sign-in sheets will be mailed to teachers the day after the conference.

Parking is available in the ramps behind the College of Engineering and Applied Sciences. ([See map](#) - lots P3 and P4). There is no charge for parking for those attending the Conference.

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	D-202	9:00am to 11:00am
Electrical and Computer Engineering A-1	D-210	9:00am to 1:30pm
Electrical and Computer Engineering B-1	D-212	9:00am to 1:30pm
Industrial Design	D-115	9:00am to 11:30am
Industrial and Manufacturing Engineering A-1	D-201	9:00am to 1:30pm
Industrial and Manufacturing Engineering B-1	D-208	9:00am to 11:30am
Materials Science and Engineering	D-115	1:00pm to 1:30pm
Mechanical and Aeronautical Engineering A-1	D-109	9:00am to 1:00pm
Mechanical and Aeronautical Engineering B-1	D-204	9:00am to 1:00pm
Mechanical and Aeronautical Engineering C-1	D-206	9:00am to 1:30pm
Paper Engineering, Chemical Engineering, and Imaging	D-202	1:00pm to 3:00pm

A **lunch** break is scheduled from noon to 1 p.m. There is a café available on site.

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

CIVIL AND CONSTRUCTION ENGINEERING

Session Chair – Osama Abudayyeh
Room D-202

NEW COLLEGE OF HEALTH AND HUMAN SERVICES

by Samuel Long, Sanjaya, and Christine Serra
Sponsor: Chris Scharlach – Granger Construction Company

Faculty Advisor: Osama Abudayyeh
9:00 a.m. to 9:25 a.m., Room D-202

A detailed estimate and schedule as well as an efficient project management system were needed for a new facility for the College of Health and Human Service to be completed on time and within budget. A work breakdown structure and complete activity list were developed after studying in depth the plans and specifications for the radius portion of the building. Using available software a critical path network was developed and a quantity take-off was performed. In addition, a thorough project management system which included a safety program as well as data collection and reporting forms was established.
[top>](#)

US-12 ROADWAY RECONSTRUCTION

by Ian Duncan, Peter Mattei, and Brandon Thomas
Faculty Advisor: Osama Abudayyeh
9:30 a.m. to 9:55 a.m., Room D-202

A portion of the US-12 Highway has been in need of restoration for several years. The pavement on US-12 was beginning to crack and deteriorate. The drainage system beneath the roadway was completely ineffective in clearing water from underneath the road. The onramp from US-12 to Interstate 94 was unsafe for drivers and a cause of many traffic accidents. To remedy these concerns, a plan of work that included a detailed estimate, a schedule and a project management system were developed.
[top>](#)

CANAL ROAD RECONSTRUCTION AND BRIDGE PROJECT

by Jeffrey Paulson, David Taylor, and Nathan Wellman
Sponsor: Edward Davids – Hoffman Brothers, Inc.
Faculty Advisor: Osama Abudayyeh
10:00 a.m. to 10:25 a.m., Room D-202

There are many difficulties in developing a cost-effective project delivery system in the construction environment. To overcome these difficulties all relevant plans and specifications for the Canal Road Reconstruction and Bridge Project were carefully studied. A work breakdown structure was developed followed by a thorough quantity take-off, and a detailed schedule. A complete estimate was developed from the previous steps. Finally, project management and safety programs were developed.
[top>](#)

EASTSIDE ELEMENTARY SCHOOL

by Jim Burns and Brian Evans
Sponsor: Skanska USA
Faculty Advisor: Osama Abudayyeh
10:30 a.m. to 10:55 a.m., Room D-202

Due to the growing population of the community there was an overwhelming need for the expansion of Eastside Elementary School. However, this project came under specific time constraints and financial limits. To meet these goals, specifications and plans were studied, and the result was a detailed schedule and cost estimate to complete the project. A project management system was also designed to control all aspects of the project including safety.
[top>](#)

VISTEON VILLAGE PROJECT BUILDING J

by Brent Florek, Cory Green, and Ryan Green
Sponsor: Michael Burris – Walbridge Aldinger
Faculty Advisor: Osama Abudayyeh
11:00 a.m. to 11:25 a.m., Room D-202

A logical work breakdown structure, construction schedule and cost estimate were developed for an office building in Van Buren Township, Michigan. The following tasks were performed: all necessary contract documents were collected, a detailed work breakdown structure was created, an activity list was created from the quantity take-off, the project schedule was created using the Critical Path Method (CPM), a cost estimate was created and a project management system was developed to further enhance the construction administration process.

[Click here to see the schedule of the individual presentations](#)

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 April 2004. If you have a project for our students or if you would like more information, please call Cathy Smith at (269) 276-3247.

BlueGranite, Inc.	Kalsec, Inc.
Carter Lumber	Mann + Hummel Automotive
Copper Development Association, Inc.	Master Sports
Corn Products International, Inc.	Michigan Space Grant Consortium
Dana Corporation	National Science Foundation
Delphi Automotive Systems	Parker Hannifin Corporation
DENSO Manufacturing Michigan, Inc.	Perrigo
Fredricks Design	Pfizer, Inc.
Fresh Solutions	PM Mold Company, Inc.
Gast Manufacturing, Inc.	Safari Technologies, Inc.
Global Berry Farms	Seagan Technologies, Inc.
Granger Construction Company	Skanska USA
Graphic Packaging International, Inc.	Stryker Instruments
Hoffman Brothers, Inc.	Stryker Medical
HotSet Corporation	Sweet Manufacturing
Johnson Controls, Inc.	Walbridge Aldinger
The Johnson Corporation	Whirlpool Corporation