Design Day Spring 2016

April 27, 2016

Spring 2016 Design Day is 20 percent bigger, featuring creative innovations by 276 teams and 1,138 students

Spring Design Day in the Michigan State University College of Engineering is more than 20 percent bigger than last year’s “largest ever” celebration. Smashing!

The culminating, end-of-year experience showcasing the innovations of the next generation of engineers and computer scientists takes place Friday, April 29, from 8 a.m. to noon in the Engineering Building, 428 S. Shaw Lane, East Lansing, with awards presented at 1:15 p.m. in Anthony Hall Room 1281. Design Day is free and open to the public.

Spring Design Day will incorporate the 10 degree programs in the MSU College of Engineering, along with 16 courses, 276 teams and 1,138 students.

“Design Day continues to grow each semester – a reflection of the growth of our undergraduate student numbers in the MSU College of Engineering,” noted Executive Director of Design Day and Professor of Computer Science and Engineering Wayne Dyksen. “Design Day presents an amazing opportunity to see the innovation and creative work of our students, and showcases their readiness to enter the engineering profession. At Design Day, student teams present their ideas to their client, defend their ideas before faculty and industry experts, and have to think on their feet – which is what is going to happen when they leave MSU and start their careers.”

Design Day includes competitions and project presentations from a variety of engineering classes, and is the culmination of the senior level capstone courses that are required for graduation from the MSU College of Engineering. The 15-week capstone courses provide a platform for students to apply the knowledge and experiences gained...
throughout their engineering education at MSU. Working in teams of four or five, seniors put their best efforts into solving real-world problems for big and small companies. At the end of each semester the teams make presentations at Design Day.

Spring 2016 Design Day by the numbers:
• 276 teams (up from 198 teams in Spring 2015)
• 1,138 students (up from 882 students in Spring 2015)

Capstone projects represent:
• 492 students
• 99 teams
• 80 sponsored projects
• 64 (80 percent) Michigan-based companies and institutions

Pre-college outreach programming includes:
• 4 schools
• 15 teachers
• 150 students from 9-12 grades

Design Day Awards Ceremony: 1:15 p.m., Anthony Hall Room 1281
• 14 awards conferred to top Design Day teams
• Judges include faculty and corporate representatives
• Some winning teams receive cash awards or advance to national competitions

Background:
• All 10 MSU College of Engineering undergraduate degree programs represented
• Twice yearly event on last day of each semester (before finals week)
• 23rd Year for Design Day (initiated in 1994 by the Department of Mechanical Engineering)

See teams and their projects in the 2016 Design Day program guide: http://designday.msu.edu/booklet/

Partnering for success: Design Day highlights strategic partnerships

More than 80 percent of the senior-level capstone projects are sponsored by companies and institutions in Michigan.
“We continue to be heavily engaged with companies in Michigan that invest in our state and our students,” said Leo Kempel, dean of the MSU College of Engineering. “This year, the number of Michigan business partners hit 80 percent. The enthusiasm of our corporate friends helps make Design Day a success and opens doors for business and industry to build relationships with our talented students.”

Money Smash Chronicle

A good example this semester is a creative idea from project sponsor MSU Federal Credit Union (MSUFCU) in East Lansing. MSUFCU Financial Educator Ian Oberg suggested to a capstone team that they intermix video gameplay with financial education. The result is Money Smash Chronicle, a colorful video game that sends tiles tumbling down the screen when three tiles match.

The user’s end goal is both to entertain and improve financial literacy.

“I came up with the proposal and am very pleased with the team’s results,” said Oberg, a 2012 journalism graduate of MSU. “The game is similar to Candy Crush Saga. It’s a match-three puzzle game for players ranging from high school students to adults, but we incorporated financial literacy quizzes to continue gameplay. So instead of pay-to-play to keep going, you easily replace a payment with a financial literacy quiz.

“The helpful financial tips give insight into establishing credit or starting a budget,” he explained. “Unlike some video games, the content can easily be applied outside of the game.”

Oberg credits the capstone team of Amy Leung of Troy, Wyatt Hillman of Rock, Cory Madaj of Midland, Brandon Max of Waterford, and Yuming Zhang from ShenZhen, Guangdong, China, with designing a game that hooks learning into the play.

“The students came up with a phenomenal product and end result,” Oberg said.

Leung served as project leader. “The idea came from MSUFCU for a game that blends fun and learning about finances. We think we have been successful,” she said.

The game is compatible with Android phones and tablets, iOS devices such as iPhones and iPads, and any laptop or desktop computer with internet access.

Capstone Project Sponsors
The list of capstone project sponsors is expansive and varies from corporations to non-profit agencies and small businesses to units within Michigan State University.

One of the sponsors is EMD Technologies, located northwest of Chicago area. The engineering consulting company specializes in reinventing retail, consumer, medical, and commercial products to provide a competitive advantage.

They partnered with a capstone team from the Mechanical Engineering course, ME 481, to design a crib air manifold to reduce SIDS by providing more air movement around the sleeping child.

Another sponsor is Heartwood School in the Ingham Intermediate School District in Mason. They partnered with an ME 481 team for an Adaptable Gait Enhancement Device, a walker to help clients develop proper balance. The three-wheel training device works to help users correct their balance while gaining strength. The device is decorated with the school's mascot, a Tiger.

More on Design Day

Design Day begins at 8 a.m. in the Engineering Building. Award ceremonies are at 1:15 p.m. in 1281 Anthony Hall, located on the east end of the Engineering Building.

This semester's Design Day sponsors are MSUFCU (executive partner sponsor), Ford (directing partner sponsor), and supporting partner sponsors: Blackstone, Bosch, Dow, GM, MSU Innovation Center, and Spectrum Health.
Also featured at Design Day will be projects developed in the first year Cornerstone engineering course, EGR 100: Introduction to Engineering Design. EGR 100 introduces students to the engineering profession and design process through team-based assignments. The course is an integral part of the MSU CoRe Experience, a residential program for all first-year engineering students.

Approximately 150 high school students will attend activities at the Dart Innovative and Creativity Design Day for students and teachers in grades 9-12. This year, students will get hands-on experience with VEX robotics – controlling a robot and writing Robot C language – plus teaming up to create an engineering support system – from a simple beam to an intricate bridge with gussets, trusses, and cables that are then tested by sonic ranging sensors – along with Weigh Up High, where students build a structure that supports at least 100 grams and maximizes the equation: \( S = MH^2 \), where \( M \) is the mass and \( H \) is the height of the structure.

The high school students also play a key judging role on Design Day, serving as judges for “People’s Choice” awards for the college students’ most popular projects.

**Design Day on WLNS TV 6**

**Related Website:** [See team projects in the 2016 Spring Design Day program](https://www.egr.msu.edu)