Disastrous *from front page*

This Otis student shows off redesigned firefighter apparel

systems engineer to get to the next level, I think they've come up with ideas that could be taken to market if they so choose."

Among the many notable concepts that came out of the class, Smith gave special mention to a proposed robot design (presented via a PowerPoint presentation) that incorporated various metering devices to measure hazardous material levels. "The concept is you send a robot into a building or area where there has been a release of chemicals or hazardous materials, and it would take readings and send the information back electronically to a remote area that is safe and doesn't require the firefighter to be in the exposure zone," explained Smith. "This idea is not only interesting from a safety standpoint, but I also think it's realistic. We already use different monitoring devices and I believe it's possible to have them all in one machine. Robots are currently used in other instances such as searching out bombs."

Another student came up with the idea of a glove with multiple layers to provide an all-in-one solution for firefighters who use multiple pairs of gloves depending on the scenario. "This student realized that changing gloves from handling one type of situation to another could be impractical, so why couldn't there be one that was multipurpose," said Smith. The student actually created a prototype and demonstrated a working glove. Though not tested by fire, the glove showed an ability to protect hands.

Smith also saw great value in a videogame concept targeting kids with the purpose of sending a safety message about the dangers of playing with fire. The prototype was an actual video that could eventually become interactive if developed further. "Children today learn differently from kids of the past," said Smith. "In this electronic age, they love videogames and electronic devices, so this would be a great way to get the message across."

Though he wasn't sure it was practical for everyday use, Smith was also impressed by a student's design for an inflatable jacket or vest that would be placed inside the existing "turnout" (yellow fireproof) jacket a firefighter wears. "I could see a possible application if a firefighter fell into a pool in their turnout equipment—which is very heavy and would make it very difficult to swim or stay afloat," Smith said. "They could pull the cord to inflate the vest."

The turnout jacket redesign also provided quite a memorable moment for both the student in question and a firefighter. "The student stopped by the fire station to try on the turnout and talk to the firefighter who was helping him," said Michlig. "Once he was fully suited up, which took some time, the fire alarm sounded. The student described the look of horror on the firefighter's face as he suddenly realized that he had to get the student out of the turnout and get himself in it without delaying the truck. They did it, but it was probably a world record."

The interaction between the students and firefighters was integral to the course's success. Michlig described the firefighters as "wellsprings of knowledge and feedback—professional, gracious, and generous with their time" and reported that they took great interest in the projects since the issues addressed were central to their jobs. "In my mind, the firefighters were simultaneously mentors and collaborators," said Michlig. "They were constructively critical of student work and always looking for a way to make student work and ideas valuable and functional."

In addition to their project designs, the Otis students also participated in training exercises. "We used them as 'victims' for what we call mass casualty incidents, and we put moulage make-up on them to simulate blood or wounds for simulated disaster events and to simulate treating patients," said Smith, who noted that such exercises have taken place at Raytheon, El Segundo High School, Chevron Park and with CERT volunteers. At Raytheon, the Fire Department created a startlingly authentic simulated dirty bomb attack. Michlig described it as follows: "As emergency vehicles arrived and firefighters began to flood the site, students wandered in shock, lay moaning in their assigned positions, vomited apple-cinnamon instant oatmeal, grasped for their dismembered limbs, and oozed packages of fake blood – all under the careful direction of the Fire Department. This exceptional experience effectively closed the gap between the speculative and the definite ways in which design mediates, facilitates, assists, or impedes such an event."

In the meantime, Smith said he is looking forward to the third go-around with Otis this fall. "Each time, we've learned from the previous class and I believe the next one will be even better in terms of how we support one another," he said.

MAPLE-WALNUT TAPIOCA PUDDING

Ingredients:

Maple-Walnut Tapioca Pudding
1 cup low-fat milk
1 large egg, well beaten
1 tablespoon plus 1 teaspoon quick-cooking tapioca
1/8 teaspoon salt
1/4 cup plus 1 tablespoon pure maple syrup , divided
1/2 teaspoon vanilla extract
2 tablespoons chopped walnuts
Pinch of ground cinnamon
Pinch of ground nutmeg

Steps:

1: Combine milk, egg, tapioca and salt in a medium saucepan. Let stand for 5 minutes.

2: Place the saucepan over medium-low heat and cook, stirring constantly, until the mixture comes to a boil, 6 to 18 minutes (depending on your stove). Remove from the heat; stir in 1/4 cup syrup and vanilla.

3: Divide the pudding between 2 ramekins or custard cups. Let cool for at least 30 minutes or refrigerate until chilled.

4: Meanwhile, line a small plate with parchment or wax paper. Coat the paper with cooking spray. Combine walnuts, the remaining 1 tablespoon syrup, cinnamon and nutmeg in a small saucepan or skillet. Heat over medium-low heat, stirring, until most of the syrup has evaporated, 1 to 4 minutes. Spread the nuts out onto the prepared paper and place in the freezer until cool, about 10 minutes.

5: Crumble the chilled walnut topping into pieces. Serve the pudding topped with the maple walnuts.

Cover and refrigerate the pudding for up to 3 days. Prepare the walnut topping (Step 4) 15 minutes before serving.

Provided by Weinstein, Bruce & Mark Scarbrough, Courtesy of Arcamax.com •