

Business Hours

Monday: 1:00 pm - 8:00 pm
 Tuesday: 1:00 pm - 8:00 pm
 Wednesday: 1:00 pm - 8:00 pm
 Thursday: 1:00 pm - 8:00 pm
 Friday: 1:00 pm - 5:00 pm
 Saturday: 9:00 am - 1:00 pm

Contact

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 Tim Haynes, Lab Manager
 Jim Correll, Director

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SUMMER 2017

at **Fab Lab ICC Taking Shape**



Although we've yet to receive our first snowfall of the season here in southeast Kansas, we're busy with preliminary plans for our summer activities at Fab Lab ICC for area youth ages 7 through 18. Of course, we'll be open to our members throughout the summer, and during the morning hours, the lab will be buzzing with:

- Fab Lab Boot Camp (more sessions, from middle school through high school)
- Maker Girls (more sessions for girls ages 7 - 10)
- Youth Entrepreneur Camp (for high school students)

Fab Lab Boot Camp

Many people are aware of our popular Fab Lab Boot Camp we've held both summers since we opened in October 2014. One thing we learned after the first year is that young people (and many older people for that matter) need practice working with hand tools and their hands. Indeed, the first Fab Lab at MIT (Massachusetts Institute of Technology) was created for the benefit of academically intelligent incoming freshmen who could not make anything with their hands. So, this last summer in the Fab Lab Boot Camp, we spent about half the time working with our hands.

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The frustration of manager Tim Haynes and I was that with school out and limited availability of work-study students, we had to limit our one-week Fab Lab Boot Camp to one event with 12 participants. This year, we just completed an initial agreement with our friends at the Greenbush Educational Cooperative to co-brand the Fab Lab Boot Camp with them. They'll provide the teachers and other resources necessary to offer six one-week sections of morning boot camps for ages ranging from middle school through high school. The capacity of each section will be much higher at 24 instead of 12. The camps will



Bootcampers working on projects this past summer.



Youth Entrepreneurs collaborate

scheduled both a morning and an afternoon session with a cap of 20 girls in each session. The sessions filled up in three days. By the time we knew how popular Maker Girl was going to be, it was too late to schedule extra sessions. The Maker Girl tour schedule was set. This year, the Maker Girl organization has just contacted us as they begin to plan their tour for this summer. We told them we were definitely interested in four or six sessions. We don't have exact dates yet, but Maker Girl will likely be here during the first part of June.

include lunch each day and the tentative time schedule is from 9 a.m. to 12 noon for the session and lunch between noon and 12:30 p.m. The exact dates are still to be determined, but the camps will likely occur during the full weeks of June and a couple of weeks in July.

Maker Girls

In the immensely popular Maker Girl program, three engineering students from the University of Illinois stopped by Fab Lab ICC during their national tour in June. In each of the two-hour sessions, participants developed an idea for an object and saw their idea come to life via one of the fifteen 3D printers the college girls brought with them. We

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From the
**DIRECTOR'S
CHAIR**



Jim Correll

Entrepreneurs You Should Know

Join us at our
Entrepreneurship Showcase
December 14, 2016

There's nothing better than seeing "real" entrepreneurs speaking with others about going out on their own to start a full or part-time business. We have some great entrepreneurs in our communities and we'll have several of

them on hand to speak with folks on **Wednesday, December 14** from **5 p.m. to 8 p.m.** at **Fab Lab ICC** in Independence. We call the event "Entrepreneurship Showcase," and you are invited.

Before becoming so busy building Fab Lab ICC, I used to set up a booth at area job fairs. I always tried to have "real" entrepreneurs with me. I would get out in the aisle between rows of all the businesses on display and greet people as they walked by. Although many people attending job fairs had a kind of despondent look about them, several would return the greeting. I'd ask them if they'd ever thought about setting up their own business and becoming self-employed. Many said "no," and that says something about our society. However, if they showed any interest at all, I'd point to the "real" entrepreneurs at my table and say, "Go talk to them. They are real entrepreneurs, not paid actors, and they have started their own businesses and are self-employed right now."

The real entrepreneurs in our communities differ from the stereotypical entrepreneurs we see portrayed in the media and on shows like "Shark Tank." Nearly all of our real entrepreneurs started very small and built their businesses from scratch. Many were not experts in the subject areas of their businesses, but they are all lifelong learners and have learned what they needed to know as they've needed to know it. For the most part, the learning did not come from college degrees. The learning came from a lot of hard work, trial and error and feedback from their customers. They all have made mistakes, and most will admit they still make mistakes. Real knowledge happens when we learn from our mistakes.

Nearly everyone has business ideas or thoughts of new inventions. Most don't think they can be like the entrepreneurs we see on television and read about in the media, so their ideas languish in their heads while so many continue working for others at jobs they don't like very well. This is why we're having the Entrepreneurship Showcase. We want people to meet our "real" entrepreneurs, not paid actors, in a casual environment to see that these entrepreneurs are ordinary people who have stepped out on their own, learning as they go. We want people to see the spark in the eyes of entrepreneurs totally in control of their daily schedules, indeed, their destinies.

The Entrepreneurship Showcase is a come-and-go, drop-in event from **5 p.m. to 8 p.m. on Wednesday, December 14** at **Fab Lab ICC**. We'll have refreshments and light snacks (catered by one of our "real" entrepreneurs). We'll have several of our area entrepreneurs on hand throughout the evening, but a highlight will be the discussion panel from 5:30 p.m. to 6:30 p.m., during which we'll ask four or five of the entrepreneurs to share how they started small and grew their businesses by learning and making mistakes along the way. If you've ever had any inkling of having a full- or part-time business or inventing a new product, please come by and meet our real entrepreneurs. Contact me for more details at jcorrell@indycc.edu or 620-252-5349.

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Youth Entrepreneur Camp

Two years ago, we worked with the Youth Entrepreneur group from Wichita to host a week-long afternoon camp during which the high school participants learned market-based entrepreneurial skills presented in the form of games and all sorts of fun activities.

According to the Youth Entrepreneurs web site (<https://youthentrepreneurs.org/>), their vision is:

To engender self-reliance among youth by introducing, through entrepreneurship, the values and skills necessary for them to lead successful, fulfilling lives as contributing members of society.

With these goals:

1. Provide the knowledge needed to start and maintain a business.
2. Help students understand how to apply that knowledge and be a better employee (to act like an owner).
3. Encourage students to pursue higher education.

The camp includes a summary of topics offered in the full-year high school entrepreneurship curriculum which is offered this year for the first time at Independence High School, Field Kindley High School (Coffeyville) and Fredonia High School. There are approximately 42 other high schools in Kansas that offer the curriculum and, in the last few years, Youth Entrepreneurs has begun to expand to high schools all over the United States. If you would like to receive email updates about these summer activities as they become available, please email jcorrell@indycc.edu.

SPONSORSHIPS AVAILABLE

When we have events, especially for youth, we want to keep the price-point affordable, even though we always have need-based scholarships available. Many times the “right” price-point is less than the cost of hosting the event and providing materials and instruction.

For these summer events, we are looking for sponsors who believe strongly in the value these experiences will bring to our area youth. Please contact Jim Correll, jcorrell@indycc.edu or 620-252-5349, to discuss the sponsorships available so you can be associated with one or more of these great events.

BULLETIN BOARD



Holiday Schedule

Christmas – New Year’s, closed from December 24 through January 2.

The open schedules up to and following these dates will be according to our regular schedule.

Monday – Thursday, 1 p.m. – 8 p.m.; Friday, 1 p.m. – 5 p.m.; Saturday, 9 a.m. – 1 p.m.

If you have family visiting over the holidays who you would especially like to see Fab Lab ICC, please call director Jim Correll at 620-252-5349. We may be able to accommodate a visit and tour during the

NOTICE

There will not be a January issue of the **FAB LAB BLAB** due to the holiday.

Watch for the next issue in February!



MEMBER SPOTLIGHT

KAREN HARDESTY CLOCK for Labette County Sheriff's Office

By Annette Tucker



Karen Hardesty of rural Parsons visited the Fab Lab at Independence Community College in early 2015 and became a member that very day. Karen, a jailer at the Labette County Sheriff's office in Oswego, has enjoyed creating handmade items since she was a child. Her mother encouraged her creativity as a leader in scouting and Campfire Girls. Karen sketched and painted. She learned to sew in 4-H and Home Ec classes, a skill she continues to use for quilting, creating computerized cross-stitch patterns and uniform alterations for officers. Her cooking skills are used to make gourmet dog biscuits called "Boss's Bones," named after her Rottweiler search and rescue dog. (Karen and her husband, Paul, responded to the Oklahoma City

Bombing site in 1995, while she was working as an animal control officer for the city of Tulsa.)

Personnel at Fab Lab ICC helped Karen become familiar with the Epilog Laser Cutter/Engraver. She found a number of Celtic designs which she loaded into the computer that operates the machine, and she etched wooden plaques she later stained and gave as gifts to friends and family. For Christmas, she made replicas of badges on small blocks of wood for co-workers. Shortly after that, Sheriff Robert Sims asked Karen to design a large clock with the Labette County insignia.

Enlarging the design so much required some adaptation. Assistant Fab Lab Manager Tim Haynes provided assistance and also introduced Karen to the Wart Hog, aka CNC (computer controlled) router table. She initially created a 3-foot by 3-foot plywood prototype of the sheriff's badge that features the state seal in the center. Fab Lab Director Jim Correll suggested Karen use leather for the seal, which she etched on the Epilog Laser Cutter/Engraver. Better quality wood was used for the finished product. Karen also created sconces resembling the sheriff's department shoulder patches to place on either side of the clock, along with a map of Kansas.

Karen delivered the clock in August, but since she works nights, she hadn't seen Sheriff Sims in person, and wasn't really sure what he thought. When she arrived during regular business hours, Sheriff Sims told Karen he was very pleased with the clock, which had been placed over the front desk to greet everyone who enters the department. (He had originally planned to hang it in his office.) The clock will become a permanent fixture of the department, even after Sims retires as sheriff at the end of the year.

Karen printed out a brief history of her project with pictures to attach to the back of the clock so people in the future will know where the items came from.

MEETING OF THE **FAB LABS**

Fab Lab ICC Plays Host to Tulsa Fab Lab

BY STEVE MCBRIDE
Independence Daily Report-



Tim Haynes, ICC Fab Lab manager, gives representatives from Tulsa a tour of the facility at the Independence Community College campus. Dan Moran, lab manager, Mitch Mitchell, lab assistant with the Tulsa Fab Lab, and Nathan Hill, Fab Lab manager of Muskogee public schools, represent a regional effort to collaborate with the Independence Fab Lab on ideas and entrepreneurship.

The Fab Lab staff at the Independence Community College recently met with representatives from the Tulsa, Oklahoma, Fab Lab, including manager Dan Moran and lab assistant Mitch Mitchell. Muskogee Fab Lab Manager Nathan Hill joined them in an effort to discuss their operations and plans for the future.

Jim Correll, ICC Fab Lab director, asked the guests to meet for lunch with members of the community who are interested in “how fab labs within the region work.” The fab lab in Tulsa has been in operation for the past five years. “We have a combination of educational and community programs that are based around digital fabrication. People join our lab to develop products and launch businesses. We are a non-profit 501(c)3 community lab,” stated Moran of the Tulsa Fab Lab.

Hill explained how the Muskogee public school district has incorporated the fab lab into its curriculum at Muskogee High School.

“We just opened in July this year. We are directly associated with the high school, as well as being open to the community. However, we are focused on developing programs directed at the students of the school district,” he said.

Five years ago, the Tulsa Fab Lab began to take roots. “We are a community fab lab that took the first two years to get started with a group of regular Tulsans forming a board of directors and a non-profit organization before opening to the

public,” explained Moran. “We are still learning how we can best serve the Tulsa community and beyond.”

There are three different programs that the Tulsa Fab Lab focuses on: the community, education and small business entrepreneurs. In their five years of operation, they have attracted 300 lab members who have enrolled in their community program, and 45,000 students will go through the fab lab this year.

“Most fab labs are under 10 years old. Everyone is new to the field, and we are all experiencing new ways of doing things,” said Moran. Currently, the Tulsa Fab Lab has a “static lab,” a lab building and a mobile lab. They are utilizing the mobile lab to visit rural locations throughout Oklahoma.

He mentioned that approximately 10 percent of the members are there for entrepreneurial reasons.

“The fab lab allows people to move toward entrepreneurship. They can start from scratch. They get classes, support and hands-on use of the equipment. You don’t have to be an expert to enjoy experimenting with the fab lab,” said Moran.

The Muskogee school district passed a bond issue for the implementation and construction of its fab lab.

“I had to learn to assemble the machines and use the equipment,”

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Call for **CLARA** Volunteers

by Kylee Saville



Poet Mattie Stepanek once said, “Unity is Strength... when there is teamwork and collaboration, wonderful things can be achieved.” After reading the front-page article of the June 2016 issue of the Fab Lab Blab, it is evident that, through teamwork, there is potential for improvement in the lives of people of all ages. This is a call to action to create an even better violin bow attachment for the young musician, Clara Conard.

The innovative violin bow attachment Fab Lab ICC was able to construct helped remove many obstacles Clara used to face in her musical endeavors. Now, we want to help her soar to even greater heights! The current design leaves something to be desired in the way it fits on her arm. Also, the absence of a wrist-like joint has, inadvertently, created a new obstacle; Clara has difficulty playing with the beautiful tone she desires and could easily achieve with a little help.

Fab Lab ICC is looking for a team of volunteers to come together, whether in person or through the internet, and improve the design of the attachment to resolve these new complications. Any and all ideas are welcome. If you are interested in being a part of this opportunity, contact the director of Fab Lab ICC, Jim Correll at 620-252-5349 or jcorrell@indycc.edu.

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Hill added.

He said it was the superintendent of the Port of Muskogee who pushed the bond issue. The port of Muskogee wanted to partner with the school district to “create a pipeline for students to go into manufacturing” and learn how to use the machines to be dispersed throughout the community.

After the luncheon with the community members, the three guests from Tulsa journeyed to the Independence Fab Lab where they were shown the different equipment and informed of the mission of Fab Lab ICC.

The parties discussed how “each lab represents a different segment of the entrepreneur mindset, with Muskogee representing the high school, Independence representing the college level of education and Tulsa representing the community.”

“We all have ideas, and the fab lab is a place to explore and build. We all can master a lot of things. Now in the environment of the Fab Lab a person can develop their ideas,” said Moran.

How to Subscribe to Fab Lab Blab

The Fab Lab Blab is published monthly by Fab Lab ICC at Independence Community College, 1057 W College Ave., Independence, Kansas. Email subscription available at no charge. Full-color, hard copy subscriptions by first-class mail are available for \$25 per year. Contact jcorrell@indycc.edu or 620-332-5470.

Edited by Susan Correll

HANDS ON LEARNING

by Monsuru 'Lekan Ramoni
Instructor, Engineering Technology - ICC

Engineering is an application of science to everyday life, which requires both theory and hands-on practicum. Theory is suited to classroom learning; but hands-on practicum is best learned in the physical laboratory. Teaching engineering in the “chalk and talk” instructional style is not particularly effective for the engineering education of today. To a large extent, colleges have come to this realization and are making efforts to engage engineering students more in hands-on practicum. In fact, some colleges have mandated capstone projects in which senior-year students work on design projects as a hands-on practicum. However, having students wait until their senior year does not strongly complement the hands-on practicum aspect of engineering education.

An attractive option is to introduce students simultaneously to theory and hands-on practicum throughout their entire college education. Independence Community College has taken a big step in this direction by establishing a fabrication laboratory, Fab Lab ICC, which is equipped with traditional and advanced manufacturing equipment. The Fab Lab encourages engineering students to roll up their sleeves from day one of their studies.

This is reflected in the Introduction to Engineering and Design class, in which students are divided into two groups and are assigned to work on design projects, while also taking classroom lectures. One group was assigned with the design and build of a dehydrator, and the second group with the design and build of a mechanical pinball machine.

The students did their designs in the classroom and used resources in the Fab Lab to construct their designs. In the course of building their designs, they faced challenges, as their first designs did not meet specifications. As they faced further resource constraints, they had to improvise. They had to learn how to use certain machines to achieve configurations they wanted. The challenges they faced are a replica of workplace challenges and solving them required more than classroom instruction.



Dalton Vineyard (left) and Blaine Winebrenner make final adjustments on a food dehydrator, one of the projects made in class.

Students gained knowledge and skills such as designing of flipper, angle, bumpers, and geometric modeling and measurement. The projects provide the students an understanding that real-world design is simultaneously a creative, analytical and cumulative process. The lab experience also provided opportunity for the students to improve their cognitive learning, such as creativity, as well as non-cognitive learning outcomes, such as teamwork.

The projects reinforce that only a certain amount of design can be taught in a lecture format; design is often best learned by hands-on experience. Furthermore, the earlier the students are exposed to hands-on learning, the better they grow in confidence in building their imaginations and develop an “I can build” belief that might serve them well in an entrepreneurship endeavor.

Classroom lectures are by no means obsolete, but engineering education today requires freeing up class time for hands-on practicum in the laboratory.

For more information, email Monsuru Ramoni [mramoni@indycc.edu] or call 620-332-5503