

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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Primary Ingredients for Innovation Experimentation, Experience and Combination



Some believe innovation is available only through lightning bolts from the sky or muses that visit in the night. Many times, however, experimentation, experience and a combination of existing solutions are what lead to new innovation.

Six-year old Clara Conard, born in China with a congenital limb deficiency was adopted at a very early age by the Conard family in Minneola, 22 miles south of Dodge City in Southwest Kansas. Clara's limb deficiency hasn't slowed her down much. She's active in gymnastics and all manner of other activities for a girl her age. She puts on and removes her prosthesis with ease, as if it were a jacket or glove. She wanted to learn to play the violin as does one of her older siblings so the family purchased a patented violin bow adapt-

er to fit to the end of her prosthetic device. There were two problems with this solution. First, there was the weight of the prosthetic, making it tiring to practice for very long. Second, the whole apparatus was so long it forced Clara to hold her arm in an unnatural position in trying to get the right sound out of the instrument.

The family found a design for a 3D printed solution on the Internet and learned about Fab Lab ICC through some of our previous media coverage. They came to Independence mid-November last year for a trial fitting of the new 3D printed adapter. After shortening the overall length much more than anyone would have guessed, Clara was able to produce a better musical tone than ever before. The only problem was the device slipping off of her short forearm. The family went home and we vowed to come up with a better solution, perhaps something made from leather to fit to the arm but adapted to the 3D printed rod and bow adapter.

Continued on Page 2

Ingredients for Innovation (continued)

Using the plastic version as a model, friend of Fab Lab ICC and part-time leather craftsman, Bobby Joe Paasch (pictured below) of Coffeyville, fabricated a custom leather apparatus that joins straps for Clara's forearm and her upper arm with a hinge joint corresponding to her elbow. Voilà, the device worked, giving Clara the flexibility to bend her elbow while keeping everything firmly attached to her arm.



Bobby Joe Paasch fits apparatus to Clara's arm as her mother, Gayly, looks on.

Many innovations do not result from lightning-bolt epiphanies or muses visiting us at night (although these things sometimes do happen), but rather they result from experience, experimentation and the combination of existing solutions and technologies. This experience serves as a great example, combining new 3D printing technologies with age-old leather craft to provide an innovative solution for a little girl living in Southwest Kansas.



Economic Gardening

Imagine Harris, Manager of Economic Programs and Operations for Network Kansas will be in Independence on June 27 for a discussion about the Network Kansas program called Economic Gardening during the Entrepreneurs Brown Bag Lunch. The lunch takes place at the iMall in Independence, 325 N Penn, from 11:30am to 12:30pm.

Anyone interested in entrepreneurship and innovation is invited to attend and bring your own lunch or purchase lunch from Ane Mae's Coffee and Sandwich House, also in the iMall.

Economic Gardening (EG) is a program for 2nd stage businesses (generally those employing 5 – 50 people with annual revenues in the range of at least \$500,000) wishing to access new markets and customers, especially those outside the immediate area. EG works by connecting businesses with a team of trained research analysts to address strategic issues related to growing within new or existing markets.

The cost to participating businesses is generally several thousand dollars but thanks to a grant from the Ewing Marion Kauffman Foundation, a limited number of Kansas companies will be enrolled in the program at no cost to the business.

Imagine will be on hand on 27th to further explain the program and answer questions. No reservations are necessary.

MemberSpotlight

Norbert Neal Honey Bee Entrepreneur

Norbert Neal, Fab Lab ICC member since February, 2016 doesn't have huge quantities of bees nor do they produce huge quantities of honey. However, his bees "work very hard" and, maybe due to something in the local environment, their honey is really good. So good, in fact, that for the last three years, Norbert's honey has won first place at the American Honey Show for all of Canada and North America. This last year, he also won best of show.



Norbert Neal, retired from Kraft Foods where he worked in food science, resides in northern Chautauqua county with wife, Katherine. Together, they own and operate Salt Creek Orchards and their honey has won first place at the American Honey show three years running.

Neal and his wife, Katherine, live near Elk City in Chautauqua County. Since retiring from working in research and development for Kraft Foods, Norbert got into the bee business about nine years ago so his orchard would have plenty of pollination. What started out as one bee colony now includes several. For about the past year or so, the Neal's have been looking for a way to design a label incorporating a flower that artist Katherine had

printed. They were contemplating the inconvenience and expense of working with big city graphic design firms when Katherine heard manager Tim Haynes present a Fab Lab program at a Methodist women's group in Independence. She went home and told Norbert, "You've got to go see that place. I think they can help us design our honey labels."

Norbert grew up in northwest Kansas in Hoxie. He had an interest in biology, science and math so he received his undergraduate degree in micro biology and a graduate degree in food science with an emphasis in micro biology. When he retired from Kraft, the couple wanted to get back to Kansas, but to a



Norbert Neal created his honey jar label design at Fab Lab ICC, using a flower painted by wife, Katherine.

part of the state where: (1. The wind didn't blow as much; (2. There was plenty of rain and (3. There were lots of trees.

Our area fits all three of the criteria.

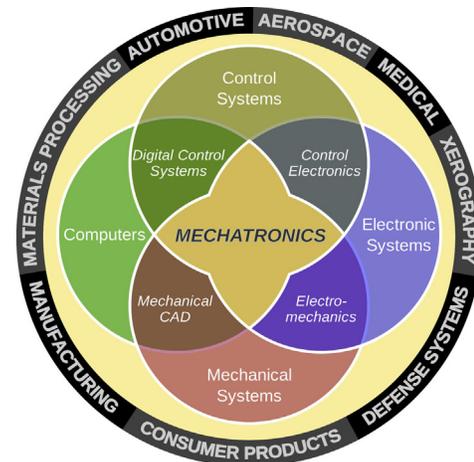
The label design work involved developing an oval shape that would fit on the honey jars and then a graphic design within the oval. That meant Katherine's straight-stemmed flower painting had to be curved with the software to make it fit better within the oval. Tim Haynes helped with the curvature and Norbert then incorporated the remaining text into the label. They've received their first order of 5,000 labels which will last several years.

With a growing interest in bees, Neal took a course in how to raise queen bees from an entomologist at the University of Nebraska, Lincoln. He now teaches a similar course and offers starter kits of 45 queen bees to people wishing to start their own bee colonies. "The real bee money is in queens, not honey." says Neal.

From the
**DIRECTOR'S
CHAIR**



The Future Requires a New Kind of
WORKFORCE TRAINING



We believe the economy of the future—which is now-- will be about customization and individualized products made possible by increased use of automation and robotics in the manufacturing environment. In order to survive, companies must learn to be agile and successful in this quick-change environment. Entrepreneurs, contractors and employees must have a wide variety of skills in addition to a single area of knowledge or specialty as in the past.

We believe the Fab Lab environment provides not only the physical attributes required for this kind of learning, but most importantly, the entrepreneurial mindset that fosters the kind of problem solving and critical thinking needed. We're working with our colleagues at Independence Community College to develop a "Fab Force" Certificate that combines elements of "Mechatronics" with elements of Entrepreneurial Mindset, Creative Design, Character, Communication and Conflict Resolution. "Mechatronics" has become a term to represent a multidisciplinary approach providing a varied knowledge and skill-set. At the equivalent of 15 credit hours it provides benefits as a stand-alone endeavor or as an enhancement to any field of study. We know that specific applications of these topics in business requires much on-the-job learning, however, we believe the introduction of these topics will provide not only a solid foundational knowledge, but also the attitudes of curiosity and desire for life-long learning required for future success.

We believe this experiential training will increase the self-efficacy of participants which will greatly increase the

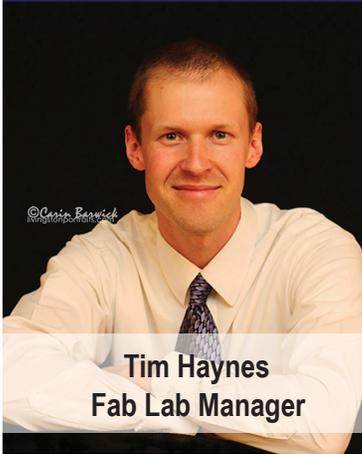
elusive "soft skills" for which we've all been looking for the last 20 to 30 years.

This training will be helpful both for those wishing to become independent contractors or small business owners and those wanting to go to work for progressive, innovative companies in our region.

These are the topical areas we'll be covering in this certificate approach.

- Electronics
- Robotics
- Welding
- Coating
- Additive (3D printing) and subtractive (machining) manufacturing
- Other "Fab Lab" elements like imaging and graphic printing
- Creative Design (used at Stanford D-School)
- Entrepreneurial Mindset
- Character
- Communication and conflict resolution

We believe this is the workforce development training of the future and we strive to be among the leaders in Kansas and our region. We welcome comments and feedback from manufacturers and small business owners as well as potential trainees. Contact us at jcorrell@indycc.edu or 620-332-5470.



Tim Haynes
Fab Lab Manager



Where's the
MANAGER

This month marks the latest installment of Upward Bound at ICC. Like last year, Upward Bound students may elect to take a condensed Fab Lab 1 course. For the next six weeks, a handful of lucky students will get to build catapults and targets, scale models out of laser-cut cardboard, and small Arduino-based electronics projects. Normally, I would list all the skills involved in each project, which the students will learn. Instead, I'd like to explain why I chose these projects instead of other, more computer-based and graphic design-based projects. As we have tried to maintain all along, Fab Lab is not about any machine or set of machines, just as cooking isn't about any one ingredient or recipe. By starting with a hands-on project with minimal computer use, students can focus on the mindset of making and re-forge the connection between their hands and their minds. Once that connection is made, students rarely sit for endless hours designing at a computer, without making anything. Once they gain confidence using their hands to translate ideas into reality, they are cured of the "writer's block" that usually stems from too much tech.

Learning cannot happen without inquiry, and failure.

I'm excited to host Upward Bound, because it is a chance for me to become re-encharanted by even the most basic of Fab Lab projects. It is a healthy reminder that, for new members to have the richest possible experience, I have to let them explore all the software and machines I already

Philosophy on LEARNING

know. I have to let them make the same mistakes I've seen and corrected a hundred times before. Mistakes or failures may seem unnecessary, since we already know how to avoid most of the common pitfalls of using our tools. However, the vast majority of our projects are intended to teach and facilitate learning. Learning cannot happen without inquiry, and failure.



Upward Bound Students 2015

If I intervene and prevent a student from failing, breaking a project, wasting material, or achieving less-than-perfect results, I may help them get the results they want faster, while simultaneously doing immeasurable damage to the student's creative confidence and self-efficacy. The key is to answer the question up front, "Is this project intended to teach, or to produce?" In the case of the former, I often must overemphasize my hands-off approach, or they may never become fully acquainted with the Fab Lab culture. In the case of the latter, if I know the member is more interested in the outcome than the process, I'm happy to answer questions and assume a more active, copilot role.

Each new group of students, whether Greenbush, Upward Bound, or Boot Camp, is an opportunity to test new teaching modules and new theories, so that each time

Philosophy on Learning (continued from Page 5)

we host a group, the experience will be more fun, more educational, and more densely-packed, at least theoretically. Last year, the Upward Bound students were required to learn a new Fab Lab machine each class period or two, and produce a project on that machine. Many students found that approach to be pretty mundane. There wasn't enough room for creativity, and not enough hands-on making. This summer, the new activities let them hit the ground running. From day one through the end of their summer program, they are putting their unique skill sets and artistic eyes to the test.

Athletic trainers know that, in order to build muscle fast, each session of weight lifting must continue until "muscle failure," or the inability to continue working, is achieved. The brain is a muscle, and if these Upward Bound students really want to become makers, then they must be allowed to work through each Fab Lab project until they have achieved muscle failure, their minds are worn out, and they just can't continue. They may go home tired and a bit disappointed at not yet having succeeded, but I know they will return with a little more grit, tenacity, and healthy curiosity than before. That will make success taste sweeter, and grit lasts a lifetime.

FAB LAB Open House Events

Fab Lab ICC has so many tools for small businesses and manufacturers it's difficult to describe them; better if people can see them. We are scheduling a series of small business and manufacturer open house opportunities this summer; all informal and all open to the public so people can see what we have to offer. See calendar on the right for dates/times.

We have the capability to print everything from business cards to exterior banners. We have binding, cutting and folding equipment. We can help make signs from wood, vinyl and aluminum letters and printed adhesive vinyl that can be applied to glass or metal. We have a professional video camera and microphones. We have 3D printing and fabrication capabilities for prototyping new products and gadgets. We have the electronics to make the prototypes come to life. We hope you will take this opportunity to see what we have to offer.



*Summer
Calendar*

What's Happen'in at Fab Lab ICC

June 7	Maker Girls Workshop See article in July edition.
June 10 7:30 a.m. - 10:30 a.m.	Open House - Small Business & Manufacturers
June 15 5:00 p.m. - 8:00 p.m.	Open House - Small Business & Manufacturers
June 21 10:30 a.m. - 2:00 p.m.	Mitsubishi Solutions in Motion Visits Fab Lab ICC
June 24 7:30 a.m. - 10:30 a.m.	Open House - Small Business & Manufacturers
June 27 11:30 - 12:30 325 N. Penn, Independence	Economic Gardening at Entrepreneur's Brown Bag Lunch
June 29 5:00 p.m. - 8:00 p.m.	Open House - Small Business & Manufacturers
July 8 7:30 a.m. - 10:30 a.m.	Open House - Small Business & Manufacturers
July 11 - 14 Time TBD	Fab Lab Boot Camp
July 13 5:00 p.m. - 8:00 p.m.	Open House - Small Business & Manufacturers
July 18 - 21 Time TBD	Fab lab Boot Camp
July 22 7:30 a.m. - 10:30 a.m.	Open House - Small Business & Manufacturers
July 25 - 29 10:00 a.m. - 4:00 p.m.	Youth Entrepreneur's Camp
July 27 5:00 p.m. - 8:00 p.m.	Open House - Small Business & Manufacturers



Clifton Taulbert, Entrepreneur, International Speaker, Pulitzer Nominated Author

Imagine

by Jim Correll

June 1, 1921

Commemerating the 95th Anniversary of the Tulsa Race Riot of 1921

Sponsored by North Tulsa 100
www.northtulsa100.com

Celebrations and remembrances for Memorial Day in 1921 (Decoration Day it was commonly called back then) had been beautiful all around the country. This was true in the Deep Greenwood district of Tulsa, Oklahoma. Greenwood was known as “Black Wall Street” and had become the crown jewel of free African-American communities in the period since Emancipation Proclamation.

Like many other communities of the time, Greenwood celebrated and commemorated their dead. They had much to celebrate. In just under 30 years since blacks began building free communities around the country; built on imagination and effort, Black Wall Street had become the most prosperous black financial district in the United States.

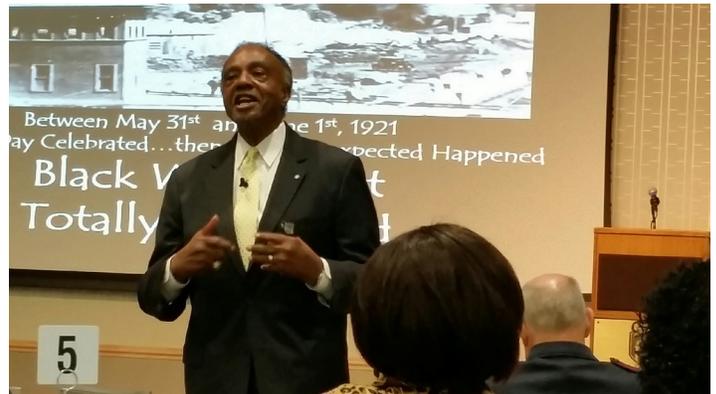
Within a few hours of the parade, the unexpected happened. A riot broke out and within 36 hours, the 38 square blocks of Black Wall Street went up in smoke. Hundreds of black citizens were killed and the rest forced from their homes and imprisoned. The “Center of Negro Promise” in the United States was gone.

On this last June 4, International speaker and friend of Independence Community College and Fab Lab ICC, Clifton Taulbert, was the keynote speaker at a brunch honoring the survivors and second and third generation descendants during the 95th Anniversary Commemoration.

In his poignant but inspirational talk, Clifton talked of the imagination and spirit, not only of the survivors but of the generations of black slaves in America from 1609 until 1865. “No one can incarcerate my imagination.” It is imagination plus effort that allows a people to endure 256 years of incarceration and slavery. It is imagination plus effort that allowed black people from all over the United States to build the strongest black financial district in the country in those few short years between 1871 and 1921. Finally, it was imagination plus effort that allowed the survivors to rebuild Black Wall Street in the years following the one of the deadliest riots in history.

Another way to describe the “Imagination” of the folks that built Greenwood is to speak of entrepreneurship or entrepreneurial mindset. No one used that word back then, so “Imagination” is, perhaps, a better word in this context. Whatever word or phrase we use to describe, the spirit is exemplified by the “What are we going to build next?” attitude of the citizens of Deep Greenwood in Tulsa Oklahoma.

We first met Clifton Taulbert in 2011 as co-author of “Who Owns the Ice House?” The Entrepreneurial Mindset Class at ICC is centered around the book and the revolutionary “Ice House” entrepreneurship program. Clifton has spoken several times at ICC starting in 2013, and most recently at the Kansas Innovation Summit in 2015 in Independence.



Clifton Taulbert, Keynote Speaker at 95th Anniversary Commemoration of the Tulsa Race Riot of 1921

Mitsubishi Solutions in Motion

To Visit Fab Lab ICC

Tuesday, June 21, 2016

2564 Brookside Dr., Independence, KS 67301 - 10:30 a.m. - 2:00 p.m.



[Click here to see the Mitsubishi Solutions in Motion video](#)

Fab Lab ICC members are invited to come and see the Mitsubishi Solutions in Motion Mobile Showroom and mini trade fair, featuring the Cognex machine vision systems and barcode readers will be at Fab Lab ICC on June 21 between 10:30am and 2:00pm.

Robotics and automation are coming and coming fast to businesses and industries in Southeast Kansas and everywhere. Indeed, thriving in the global economy will require continuous innovation, automation and use of robotics to



Robot display.

stay competitive. When Jim Kemmerer of Power Motion, Inc., Lenexa, Kansas approached us looking for a location to set up this display, we jumped at the opportunity to host the event at Fab Lab ICC.

The truck is a 53ft. tractor-trailer with slide-outs making the width to 18ft. and it showcases Mitsubishi's automation disciplines into a one-of-a-kind display not usually available in rural areas.

“We were looking for a way to get to know more of the manufacturers in Southeast Kansas and several people suggested we speak with Fab Lab ICC about co-sponsoring a display,” says Kemmerer. “We’re very happy to host the Mitsubishi Solutions In Motion truck at the Fab Lab as well as having other information about our product lines available.” Power Motion, Inc. represents nearly 50 product lines of automation robotic, sensing and output equipment and devices.

A light lunch will be provided and an RSVP to Lisa Pullen at kcsales@powermotionsales.com is requested. RSVP’s

Inside the solutions in motion trailer...

Servo & Motion: Innovative features such as one-touch auto-tuning and advanced vibration suppression boost productivity with reliability, speed, and safety.

Robot: Ideal for a diverse range of applications, RV (vertical type) robots are suitable for even the most complex applications. 5- and 6-axis models, available in a variety of reaches, provide maximum flexibility, while multiple protection ratings including IP67 and ISO class 3 provide maximum protection.

Software: Integrated software suite used for visualization, programming, troubleshooting and maintenance of automated assets.

CNC: Full lineup of standalone CNCs well suited for high-speed and high accuracy machining, high productivity and easy operability.

E-F@ctory: Plant floor to enterprise IT connectivity - improve the performance and reliability of information management.

Automation Controls: Highly Integrated Compact modular, and Basic Control - Solutions for all of your Sequence, Motion, Process, CNC and Robotic applications.



Cognex, the world leader in machine vision technology, will have a representative on hand at this event.