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# THE KENTUCKY FEDERATION FOR ADVANCED MANUFACTURING EDUCATION: EMPLOYER ENGAGEMENT AT ITS BEST

By Dianne Leveridge

**O**verview  
Recognizing the need for employees with high-quality manufacturing maintenance skills, manufacturing employers in central Kentucky sat down together to address their most pressing problems: employability, availability and skilled expertise. They started out small in 2010. Toyota served as the main sponsoring manufacturer in partnership with Bluegrass Community and Technical College (Georgetown campus) to offer a manufacturing technician career pathway, coupled with the delivery of behavioral and technical competencies. Academic formalization of this early program occurred in 2014, and in January 2015, the governor of Kentucky announced the Kentucky Federation for Advanced Manufacturing Education (KY FAME), which is built upon these early steps.

KY FAME created an educational partnership model designed to develop globally competitive talent locally. Led by employers, the model is an apprentice-style hybrid: Students attend class two days per week and work at a sponsoring employer three days each week.

The KY FAME Board of Directors focus their energy and expertise on program

standardization, quality, consistency, evaluation and hiring successful graduates. Comprised of and led by manufacturers, the board partners with supporting members to accomplish the organizational goals. In turn, supporting members help the board execute and deliver the partnership outcomes. Currently, supporting board members include:

- The Kentucky Association of Manufacturers, which represents manufacturers of all sizes, as the model applies equally to companies of any size.
- The Cabinet for Economic Development supports KY FAME by acting as a liaison with governmental agencies.
- The Kentucky Community and Technical College System supports KY FAME by representing all educational levels.

Additionally, the board started FAME chapters throughout the state. Chapters are led by local employers/manufacturers in partnership with an educational provider.

The model has three primary components: workplace/soft skills development,

also known as personal behaviors (there are six); the five manufacturing core exercises; and manufacturing maintenance technical skills development.

Personal behaviors development, coupled with the manufacturing core exercises and employer sponsorship, elevate the KY FAME model above other partnership models. These components apply globally to many occupations in a variety of career pathways—health care, information technology, business, engineering and more.

Graduates of the early iterations of the program are now successful technicians who are capable of rapidly integrating into the world of work and quickly contributing to the business bottom line. The partnership's model fosters analytical and critical thinking, applied in practice during the work sponsorship.

## Model Elements

The KY FAME Advanced Manufacturing Technician (AMT) track is the initial program within the employer-education partnership (EEP). (Other pathways include an Advanced Operator Certificate, which is in pilot this spring.) Sustainability of the program depends upon employers collaboratively determining their long-term em-

ployee needs. Sponsored students within these pathways learn and earn in cohorts throughout the program.

Employers recruit a variety of students for the KY FAME program: high-achieving high school students with an interest and background in science, technology, engineering and math (STEM); veterans with technical backgrounds; and current or displaced workers interested in technical advancement.

Those interested in the program submit an application, which is reviewed by KY FAME partner employers. Applicants are screened initially based upon entrance test scores (ACT or COMPASS) and transcripts, followed by interviews with the employers. Once selected, students attend class as a cohort for five consecutive semesters, learning industrial maintenance within a simulated manufacturing environment. Students work 24 hours each week and attend class on campus 16 hours each week. Through hands-on instruction at the KY FAME employer sites, students quickly connect classroom concepts with workplace realities.

Several elements distinguish the KY FAME EEP model from other workforce or apprenticeship training. The classroom concepts are connected to workplace demonstration in real time. For example, as students learn electricity concepts, they are also reinforcing these same concepts in the workplace. Students learn analytical, critical-thinking and interpersonal skills. Working in a team environment, sponsored students identify ways to cut costs and improve processes, adapting to business changes as they solve real-world business problems.

The cohort method reinforces exposure to all the employers within the KY FAME chapter, broadening students' horizons to the global marketplace. The KY FAME program includes learning core manufacturing fundamental principles for a safe and productive work environment, taught through the five manufacturing core exercises:

- safety culture
- 5S system of efficient workplace organization (sort, set in order, shine, standardize, sustain)
- lean manufacturing

- problem solving
- machine reliability

The skills always remain connected to the workplace because KY FAME employers also participate in the core exercises.

In addition to learning manufacturing principles and the five manufacturing core exercises, students are instructed in the six personal behaviors—attendance, initiative, diligence, interpersonal skills, teamwork and communication—in the classroom and the workplace. Assessments in both school and work chart the development of these skills.

### Model Outcomes

KY FAME graduates develop a pathway to high-demand technical careers. Successful graduates are prepared for employment as industrial maintenance technicians. Graduates earn an Associate in Applied Science in Industrial Maintenance Technology. Those desiring additional education can

pursue bachelor's degree options with KY FAME employers through tuition-reimbursement programs.

Focused on the need for statewide quality and consistency within career and technical education (CTE), KY FAME employers led the development of the Advanced Manufacturing Technician track, providing 1,800 hours of on-the-job training coupled with the simulated manufacturing environment classroom. Because employers determine the wage floor for all sponsored students, successful graduates can complete the program with little to no debt, with the potential opportunity to work full-time with their sponsoring employer.

KY FAME partner employers have developed a cost-effective, efficient skills pipeline, aligned specifically to their industry needs. KY FAME employers provide mentors for the sponsored students to help smooth the transition from full-time student into full-time employee. The program follows W. Edwards Deming's Plan-

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Do-Check-Act (PDCA) model, as improvements from chapters are shared as best practices statewide.

For KY FAME partner colleges, the model serves as a catalyst for deep partnership development with industry. Faculty are trained and certified to deliver the KY FAME curriculum, with direct and frequent access to sponsoring employers regarding student progress, coursework and improvements. Led by industry, education partners come to the table learning advanced manufacturing methods, discerning the skills overlaps between CTE and core education, and how both fit seamlessly into the workplace.

### Current and Going Forward

Some of the surrounding states are now applying the KY FAME best practices to their workforce education programs. Furthermore, Toyota has established programs in eight states where the company has plants, in partnership with local community and technical colleges. Industry

leadership sustains the KY FAME model and builds the model into other industry sectors and manufacturing pathways.

Table 1 shows 147 students enrolled in the KY FAME program as of fall 2015 at six partner colleges sponsored by 56 different employers:

- Bluegrass FAME (BGFAME) partners with Bluegrass Community & Technical College
- Northern Kentucky FAME (NKY FAME) partners with Gateway Community & Technical College
- Greater Louisville FAME (GLFAME) partners with Jefferson Community & Technical College
- Greater Owensboro FAME (GOFAME) partners with Owensboro Community & Technical College
- Cumberlands FAME (CUMBFAME) partners with Somerset Community College

- Lincoln Trail FAME (LTFAME) partners with Elizabethtown Community & Technical College

Throughout 2015, KY FAME expanded across Kentucky into multiple chapters, with 125 employers engaged and evaluating whether they are ready to begin to sponsor students.

KY FAME chapters will continue to grow, adding local employers with similar interests in developing globally competitive talent locally. KY FAME pathways also are growing, expanding into tool and die, advanced operator positions and other manufacturing sector roles.

KY FAME efforts are helping to change the perception of manufacturing from dangerous and dirty into a productive and lucrative career opportunity for students.

#### Tech

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Table 1. KY FAME Program Metrics Overview

KY FAME Program Fall 2015						
Chapter	Total No. of Students	Male	Female	Veterans	Incumbents	Sponsors
Bluegrass FAME	71	65	6	6	11	18
Northern Kentucky FAME	24	22	2	0	7	11
Greater Louisville FAME	18	13	5	0	0	8
Greater Owensboro FAME	15	14	1	1	0	9
Cumberlands FAME	10	9	1	2	4	6
Lincoln Trail FAME	9	9	0	0	0	4
TOTAL	147	132	15	9	22	56