BLACKHAWK Technical College

Blackhawk Technical College's Lean Technical Education Initiative

Essential Elements for Mastery Learning

The Manufacturing, Apprenticeship, Technology and Transportation Division at BTC

One of 16 Technical Colleges in Wisconsin with 2,300 students

In Rock and Green Counties (Cheese capital of the U.S.)

Historic manufacturing region along the WI-IL stateline

Programs in the Flexible Learning Model:

- Electro-Mechanical/Integrated Systems Technology;
- Engineering Technology,
- Precision Manufacturing /Computer Numeric Controls Technician (CNC);
- Transportation- Auto & Diesel;
- Welding/Robotic Welding; Fabrication;
- IT-Network, Hardware and Software programs (including Information Technology for Manufacturing);
- Energy Power Distribution;
- Industrial Mechanics

Putting the Student at the Center of the Learning System

- Continuous Learner Access to Faculty Support
- Broad access to labs and equipment (Weld Lab Open 62 hours/week)
- 24 x 7 Learner Access to Direction & Materials
- Individualized assessment, rigorous feedback & advising
- Students can enroll/add classes through semester's 12th week

Student at the Center: Part 2

- Occupational skill targets continuously improved
- Short skills specific focused courses (1 credit modules)
- Skills focused certificates make up diplomas, degrees
- Adequate Progress of Student Work continuously measured

The Technology Education Strategy Across Programs

Systems based approach to technological learning

- Provides an overall framework for learning
- Constantly references the “real world”
- Improve transferability between school and work
- Example: Integrated Systems in manufacturing

Includes Students from Industry!

- Company skills aligned with program disciplines
- Subject Matter Expert (SME) Faculty write assessments with Company Trainers
- Company skill needs turned into course projects
- Incumbent workers enrolled as credit students
- Projects become “OR” activities in regular classes
- Companies pay for development of new college materials
- Materials are “non-proprietary” & in the public domain
- Open labs shared by all (at the same time)

The Initiative Requires Kaizen Interpreted for Higher Education

The only way to manage this is to focus on the process

- Commitment to Kaizen (Continuous Improvement) comes first
- Learning comes from observation and practice: gemba Kaizen
- Improvement and innovation come from people who learn and grow
- The future comes from innovation

- "Shingijutsu-Kaizen: The Art of Learning and Practice"

  Wood, Herscher, Emiliani

Kaizen Education: Labs & Online Learning Tools

- 5S (Sort, Set in Order, Shine, Standardize, Sustain) to create order and efficiency
- Standard Operating Procedures (SOPs) to learn tools in the labs
- Demonstration Videos to show good practice
- Consistency in Learning Management System (LMS) course and program shells-transparency
- Lab equipment aligned in “Cells” of skill practice
- Visual Indicators - Kanban Boards

Kaizen Continuous Educational Process

- Project Centered Learning
- Constant refining of projects per credit
- Multiple “Or” projects
- Multiple “Or” courses
- Embedding industry in the labs
- Transparency of course content, assessments, projects and interactions with students
- Constant faculty communications on coursework and ware

Kaizen Education: Data

- Credit Hours Sold
- SARS Data
- Adequate Progress Indicators
- Open lab schedules
- Weekly Student Electronic Surveys " Feed Brain" (from an IT student)
- Learning and Study Skills Inventory (LASSI) Scores as indicators of preparedness
- Dashboards for Faculty and Staff

Kaizen Education Faculty & Staff

- All courseware in common repository (Blackboard)
- Processes for continuous lesson improvement (Yuja, student meetings, faculty debriefs)
- Processes for lab project development
- Enhanced faculty Roles and Responsibilities
- Performance evaluation based on participation in continuous improvement strategies

Challenges

- Establishing new educational performance metrics that will align with the State's criteria
- Changing the culture of the wider organization beyond the Manufacturing, Apprenticeship, Technology & Transportation (MATT) division
- Cognitive dissonance between current state and preferred state

BLACKHAWK Technical College

THANK YOU

Questions – Comments

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Get there faster

BLACKHAWK TECHNICAL COLLEGE