

# Leadership Capacity Building for Manufacturing and Manufacturing-Related Programs

Ivy Tech's Leadership Model for Deans and Chairs  
of Technical Programs

**2016 ATEA National Conference**

Orange Beach, AL



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Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

# **SME's Top Three Weaknesses/Challenges**

(Circa 2013)

- 1. 10 out of 14 “leaders” in the division have been in their role for 2 years or less!**
2. Increase enrollment in the division's technical programs.
3. With the elimination of engineering technology programs at UD the division needs to cultivate new relationships with other area 4-year institutions.



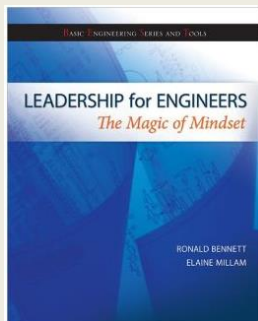
# Panelists

- Ron Bennett
- Mohammad Zahraee
- Niaz Latif
- Aco Sikoski
  
- Sue Smith
- Suzan Perry
- Vearl Turnpaugh
- Lana Rucks, The Rucks Group



# Project Summary

100 Hour Program to develop as emergent leaders and begin to shape an organizational plan that reflects innovation, inclusion of leadership capacity in the curriculum and becomes a best practice in the industry

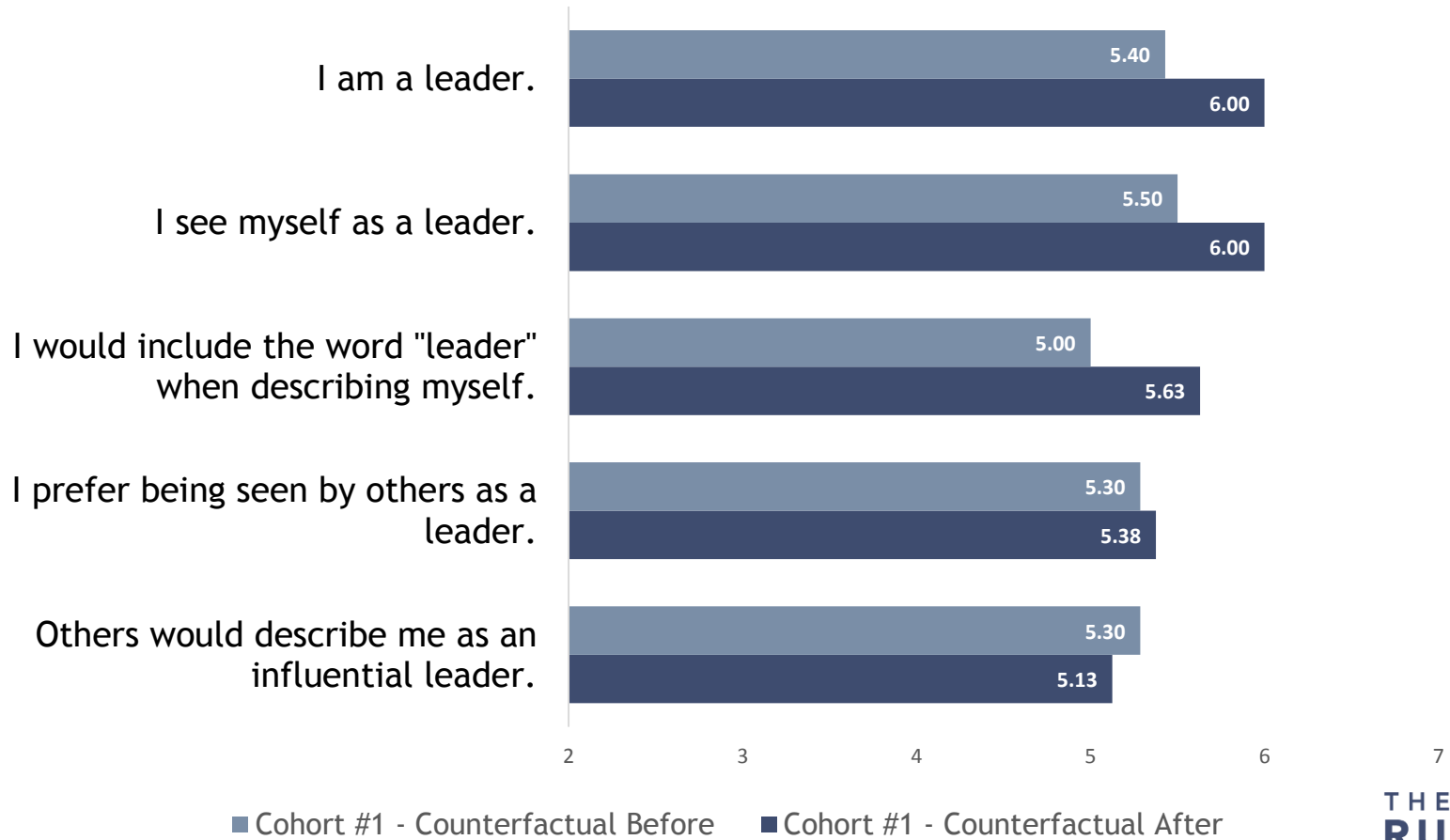


Personal **and** Professional Development  
using *Action Learning*



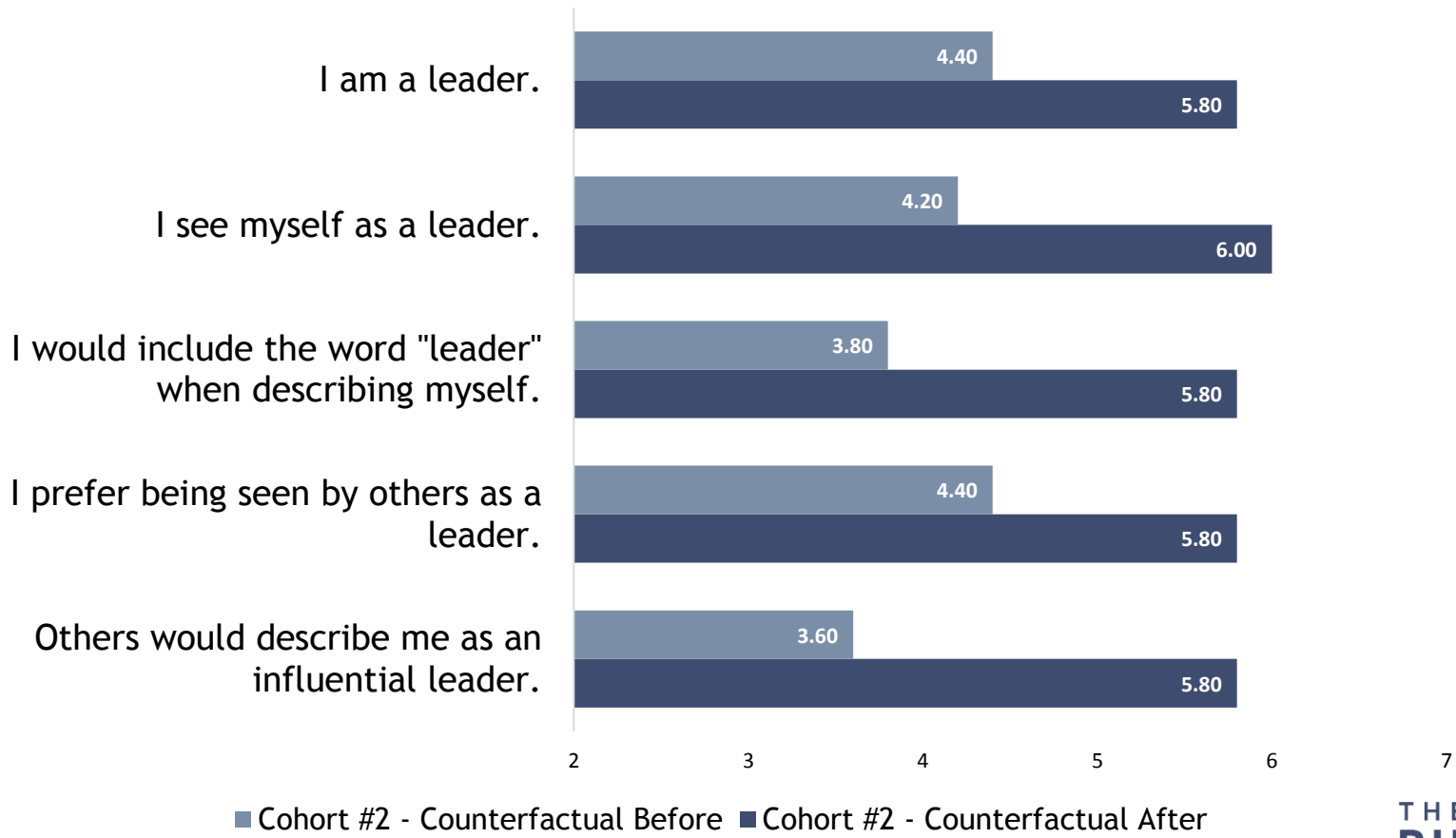
# Perceptions of self as a leader

## Cohort #1



# Perceptions of self as a leader

## Cohort #2





Arranger  
 Harmony  
 Ideation  
 Maximizer  
 Futuristic  
 Intellection  
 Connectedness  
 Consistency  
 Communication  
 Command  
 Strategic  
 Focus  
 Responsibility  
 Context  
 Deliberative  
 Restorative  
 Input  
 Belief  
 Developer  
 Adaptability  
 Learner  
 Achiever  
 Relator  
 Analytical



“Strategy on a Stick”

**Ivy Tech Technology and Applied Science Division will be innovative leaders recognized as the first choice for unique business-driven technical education and training provided through flexible delivery with a premium return on investment. The primary goals are to decrease the skills gap and enhance the quality of life by increasing opportunities.**



# Technology and Applied Sciences Division Plan

Sue Smith  
Division Vice President



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# Marketing

## Recruiting and Retaining Customers

Grow our industry recognized, high demand programs recruiting and retaining students and corporate partners who will enjoy a good return on their investment.

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**The NSF Leadership Training Grant provided an opportunity for the Technology Division leadership to meet, reflect, analyze and take ownership of our destiny, which included how to address this skills gap challenge**

# Vision Statement of School of Technology

Innovative leaders recognized as the first choice for unique business-driven technical education and training provided through flexible delivery with a premium return on investment. The primary goals are to decrease the skills gap and enhance quality of life by increasing opportunities

## Process

- Playing off Vision statement – a committee was formed
- 14 regions across the state, 14 marketing strategies
- Tasks Completed:
  - Situation analysis
  - Future state
  - Target audience
  - Marketing messages
  - Marketing tool kit
  - Marketing budget

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## Strategic Initiatives

- Marketing Toolkit for each region to take to events
- Program messaging, marketing, and print materials
- Digital and television ads
- Promote uniqueness – stackable credentials, national certs, state of the art equipment and labs
- Applied technical training, internships and apprenticeships
- Align with industry

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## Situation Analysis

- Marketing efforts will focus heavily on:
  - Student recruitment and retention
  - Relationships and partnerships with community, businesses, and apprenticeship programs
- Strategic communication efforts will focus on reaching target audiences with our regional program-specific messages

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**INDIANA –  
SHORTAGE OF  
SKILLED  
WORKERS**



**PERCENT OF  
MANUFACTURING EMPLOYEES  
AGE 45  
TO 64 - 52.28%**



**675,000  
WORKERS  
DEMANDED BY  
INDIANA'S  
ECONOMY IN  
2025**





SO HOW DOES IVY TECH HELP BRIDGE  
THIS SKILLS GAP?

# Marketing Strategy

- It is all about the “**brand**”
  - Partnerships with state-wide vendors should be present on ALL promotional materials, either print, digital, radio, etc.
    - NIMS
    - MSSC
    - OSHA
    - Snap On
    - AWS Welding
    - NCCER
    - Siemens and Fanuc
  - Local partnerships and industry logos should be adaptable at the regional level

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# Marketing Tool

- Program-specific messaging and marketing
  - Customizable
  - Regional detail

**IVYTECH.EDU/ADVANCED-AUTOMATION-ROBOTICS**

## ADVANCED AUTOMATION ROBOTICS

The Advanced Automation and Robotics Technology (AART) degree was developed with input from the Indiana Automotive Council, a group of world class employers including Cummins, Subaru, Chrysler, General Motors, Asin USA, and Honda. It is designed to maximize student learning and outcomes utilizing a cohort model which combines internships with applied classroom education in advanced manufacturing to best prepare students for exciting and potentially high paying careers. The program is modeled after the most effective and efficient way to train highly skilled employees – apprenticeships. AART provides paid internships for students not employed full time by the industry partners, and can be used as an apprenticeship for internal employees.

**Certificates Offered:**  
Mechatronics Level I

**Typical Careers:**  
Manufacturing Engineer Technician  
Manufacturing Controls Engineer  
Robotics/Automation Technician  
Electro-Mechanical Technician  
Industrial Maintenance Mechanic  
Production Supervisor  
Machine Operator/Production Worker

**ASSOCIATE OF APPLIED SCIENCE**  
Associate of Applied Science degree programs are two-year programs that prepare students for careers, career changes and career advancement. Students who need to take longer to complete the degree because of job or family obligations can take the program over a longer period of time. AAS programs may also prepare students for transfer to four-year institutions. These programs offer education in recognized technical areas and specialties with emphasis on analysis, synthesis and evaluation.

**REGIONAL CONTACT INFORMATION**  
John Stone  
jstone1@ivytech.edu  
765-289-2291 ext. 1329

**IVY TECH  
COMMUNITY COLLEGE**

Certificate programs in this program are considered by the U.S. Department of Education to be "Critical Employment" programs. Information about program length, cost, loan skills, graduate, and related occupations can be found at [http://www.ivytech.edu/education/critical\\_employment.html](http://www.ivytech.edu/education/critical_employment.html).

**EARN MORE AND IMPROVE YOUR SKILLS**  
If you want a good-paying job, you need to invest in your education. With an associate degree from Ivy Tech Community College, you'll earn an average \$18,000 more each year than you would with just a high school degree. Over the course of your career, that has a tremendous impact on your earning power—a difference of up to \$400,000. As a result, you'll have the chance to explore opportunities that are well worth the time you'll spend in class. Get started today. Call 888-IVY-LINE (888-489-5463) or visit [IvyTech.edu/NewStudents](http://IvyTech.edu/NewStudents).

ivy\_17760\_1-4\_Program\_Flyer\_Advanced\_Automation\_Robotics.indd 1 8/21/14 9:44 AM

# Marketing Tool

- Recruiting package per Region
  - To use at all recruiting events
  - To take to Career Fairs/Job Fairs, etc.
  - To set up at all appropriate campus functions (for internal/external marketing)
  - To promote a standard brand recognition for the Technology Division across the state



# Marketing Tool

- Regularly update websites
- Digital and television ads



Median Automotive Specialty Technician  
salary in Indiana

**\$18.00/hour**

apply  
now

**497 Annual Job Openings**  
projected number of job openings through 2020

\*All wage and employment data taken from EMSI April 2015 - Your starting salary may vary

# Target Audience

- Traditional students
  - Middle school students and parents
  - High school students and parents
  - Career Center students
- Non-traditional students
  - Incumbent workers
  - Those who need skills upgrades
- Employers
- High Schools



**Hot Job**

**Industrial Engineer**

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**Average Salary:** \$69,270

**Education Training:** Bachelor's Degree

**Major Industry:** Science, Technology, Engineering and Mathematics

**Related Occupations:** Mechanical Engineer, Human Factors Engineer and Ergonomists; Logistics Analyst, Industrial Engineering Technician

**2012 Employment:** 8,042

**2022 Projections:** 8,563

# Marketing Budget

Budget includes:

- Per Region (estimated at \$3200 per Region annually)
  - Recruiting package
  - Flyers
  - Advisor newsletters for high schools and Career Centers
  - Give-away's for marketing events
  - Professional videos for each program
- At the State level (estimated at \$270,000 annually)
  - Digital, radio, and TV advertising
  - Social media advertising

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## Sustainability

- Funding for any new initiative is complex
- Ideas for sustaining this marketing campaign beyond the initial cost:
  - Increase the instructional fee per class per student (\$2/class/student)
  - Charge a minimal fee for dual credit classes
  - Grant opportunities
  - Ask companies to help with advertising by including company logos on all giveaways and promotional items

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# Program

- This leadership training has given us time to reflect and define who we are as a School
  - What are our strengths?
  - How do we promote those strengths honestly?
  - Who is our target audience?
  - Who are our partners?
  - Where do we go from here?
- We **MUST** move forward with the Plan developed during this training

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# Faculty and Staff

## Recruiting and Retaining Talent

To grow the division and positively affect completion rates we must attract and retain talented faculty and staff. We must also structure region functions to support student success and alignment with industry.

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## **In order for this Division to grow:**

- There is a great need for the development of a faculty that meets the credentialing and experience necessary to match those skills required for the industry.
- We must also have Marketing and Human Resource administrative support to aid in the search for qualified applicants.
- Once employed, we need to provide a teaching environment that encourages the retention of said faculty.

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## Following is a list of factors that we feel can assist in recruitment and retention:

- **Faculty Loading:** Balanced loads based on contact hours;
- **Credentialing:** Required, need deliverable training cycles;
- **Human Resources and/or Marketing support:** Active search support, start time acclimation is crucial;
- **In-House Recruitment:** Build from within;
- **Salaries:** A major barrier to success!

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# Faculty Recruitment & Retention

We don't teach for the money; unfortunately, we can no longer adequately recruit without it!

**Salaries:** Recruiting faculty members, whether full time or adjuncts, is somewhat of a problem because of the current salary schedule. Although the expectation for faculty salaries to be equal to counterparts within industry is not realistic, these salaries should be at a somewhat closer level to the beginning salaries of our students.

**Student average starting salaries:** Are much greater than those salaries offered to faculty and adjuncts. (Average Technology Student starting salaries is currently \$77,000.00, based on internal data).

**Faculty Starting Salaries:** Incoming new faculty offers are:  
- roughly 50-55% of starting student graduate salaries.

**Adjunct Starting Wages:** Incoming adjunct wages are:  
- roughly 50%, and vary region to region, of what they are paid in their regular jobs.

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# Faculty Recruitment & Retention

We don't teach for the money; unfortunately, we can no longer adequately recruit without it!

**The Dilemma:** The salary disparity with industry makes it almost impossible to recruit young applicants with families. Older applicants aren't interested because they make 2-3+ times our starting wage already.

**Suggested salary range:** Based on a 12-month contract and upon credentials, certifications, and industrial experience, the salary range should be \$49,000.00 to \$80,000.00.

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# Faculty Recruitment & Retention

**Moving Forward:** A strong organization must start with its leaders. I believe we have properly identified the barriers to faculty recruitment and retention success, now it is up to us to address the issues within our power to change. Many regions (including mine) are already working on the non-financial issues and are making needed headway. Financial semi-equality will obviously take time, but we must address it now in order to recruit competitively with today's identified skills gaps at issue.

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# Technology Division Leadership –

**Technology Division Dean** -Changes in the expectations for a Technology Division Dean have changed requiring them to spend more time away from the office and take on more of a community presence:

- Meetings with industry to establish stronger relationships
- Attend more state-level meetings to discuss the state of the industry and how to meet skills gap issues
- Become more visible in local career centers and high schools
- Maintain the regular functions of the Division Office

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# Technology Division Leadership –

**Technology Division Dean:** It may be necessary for an administrative assistant to carry on with the supervision of the school.

- Examples of this supervision could include:
  - Official approvals
  - Faculty issues
  - Student issues
  - Representation of the Division at events, meetings, etc.

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# Technology Division Assistant Dean

## Responsibilities include:

- Work with the Division Dean, the Vice Chancellor for Academic Affairs and Division Vice President to support the College's mission, strategic planning and College development initiatives.
- Proactively link with business and industry in regards to current and future College curricula within the division.

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# Technology Division Assistant Dean

## Responsibilities include:

- Work with the Division Dean, the Vice Chancellor, Division Vice President, individual program and department chairs, and other faculty to plan for curriculum development, modifications and deletions; set priorities for resource needs and provide program analysis.
- Recommend instructional and general policies, conduct meetings to facilitate planning and collegial decision-making and to keep staff informed about issues and projects for the overall College instructional program.

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# Technology Division Assistant Dean

## Responsibilities include:

- Maintain current knowledge of trends and innovations in post-secondary education.
- Participate in scholarly activities related to the discipline/focus.
- Promote excellence in learning centered teaching and promote faculty engagement in scholarly activities.
- Link the College's Strategic Plan with Division strategies, objectives and initiatives.
- Assist to ensure Division's compliance with applicable policies, accreditation standards and legal requirements.

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# Enrollment, Resource, and Staffing Management

## Enrollment Management:

1. Support Student Affairs and Marketing and Communications in recruitment, advising (mentoring), registration, retention, graduation, and promotional activities.
  - Today's emphasis on recruitment and retention has enlisted faculty to create novel strategies.
2. Work with secondary (including dual-credit) and post-secondary linkages to enhance Associate's degree.

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# Enrollment, Resource, and Staffing Management

## Enrollment Management:

1. Facilitate course scheduling conducive to student enrollment and block unified division-wide block scheduling.
2. Foster career development and promote career services and alumni activities.

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# Enrollment, Resource, and Staffing Management

## Resource Management:

1. Prioritize and manage division budget consist with policies.
2. Promote resource generation and work with faculty on ideas for program improvement and resource generation (gifts in-kind, grants, etc.).
  - Assist faculty with grant management.

## Staffing Management:

1. Coach and assist in new employee selection.
2. Facilitate in onboarding new faculty.

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# Technology Division Student Retention and Completion

**Rationale:** Due to the expectations of the Commission of Higher Education and the standards of the College, it is the responsibility of each Division to develop a plan that will cultivate the retention of students leading to completion. The following is a list of suggested methods to meet these expectations specifically related to advising, teaching and engagement.

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# Technology Division Student Retention and Completion

## Suggested solution : Advising, Teaching and Engagement

### Advising

- Due to the intricacies of the programs within the Division and to help students achieve completion within a reasonable timeframe, students need to meet with content experts (Program / Department Chairs / Specialized Advisors) within the first semester of enrollment into the program of choice.
- Any student that is discovered as a self-advisor should be contacted and encouraged to meet with an advisor to assure that a curriculum track has been established and is maintained.

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# Technology Division Student Retention and Completion

## Suggested solution : Advising, Teaching and Engagement

### Advising

- Close working relationships between the Division and the Financial Aid Department are necessary to assure that program changes, program approvals, etc. are made with financial agencies to minimize issues resulting in the student's inability to register or remain in scheduled courses.
- Student enrollment activities should be audited. Any returning students who have not registered for the upcoming term should then contacted and encouraged to register. This also includes student who have laid out a maximum of one semester.

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# Technology Division Student Retention and Completion

## Suggested solution : Advising, Teaching and Engagement

### Teaching and Engagement

- Open flexible lab schedules should be offered to allow students to work on course projects outside of schedule class time. This time should be documented and tracked to assist in lab demand determination.
  - Lab Assistants or Managers should be used to supervise the labs during this time.
- Student organizations associated with programs or accrediting bodies should be offered.
  - Faculty should be allowed download schedules to manage and recruit for these organizations.
- The use of hybrid and /or stackable hybrid courses that allow today's busy working student the opportunity to attain multiple credits for one block of time should be considered.

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# Equipment and Quality Delivery

To put processes and procedures in place to continuously improve the division and increase efficiencies reducing costs and improving sustainability.

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# Strategic Initiatives

- Process mapping equipment to program needs – current and future
- Order and secure equipment centrally to increase efficiency and lower cost
- Review and improve program design and delivery concept
- Utilize program improvement measures in place for ATMAE
- Fully develop and utilize advisory committees
- Implement equipment replacement plan

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# *Process mapping equipment to program needs*

- **Course Mapping**
  - Course competencies mapped to required equipment/software
  - Mapping determined by Industry, Nationally Recognized Certifications, and Faculty Advisory Boards

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# Process mapping equipment to program needs

- **Course to Equipment Matchup**
- Current Inventory
  - Required Equipment
  - Enhancement to Program

ITEM B - Courses & Equipment Needs Match up - Sellersburg						
Category	Course	Description	Required Equipment	Equipment Possessed/Purchased 2014	Equipment Needed to Teach courses	
Manufacturing	ADMF 101	Key Principles of Advanced Manufacturing (MSDC - Mode 182)				
	ADMF 102	Key Principles of Advanced Manufacturing (MSDC - Mode 184)				
	ADMF 112	Mechanisms I	Mechanical Drives: belts, gears, chains, etc. Mechanical Drives: Theory duty belts, chains, sprockets, sprocket alignment	Mechanical Drive Systems 1 (2) purchased Mechanical Drive Systems 2 (2) purchased	see INDT 203	
	ADMF 113	Mechanisms II	Mechanical Drives: Bearings, Lubrication Mechanical Drives: Ball Screws, Couplings, etc.	Mechanical Drive Systems 1 (2) purchased Mechanical Drive Systems 2 (2) purchased http://www.comsol.com/commcms/3.10/	MS-MED - Mechanical Drive Systems (2) w/ Drive Shaft MS-MEA - Mechanical Drive Systems (2) w/ Drive Shaft	
	ADMF 115	Materials and Processes for Manufacturing	Materials Testing Equipment Drill Press, Band Saw, Horizontal Saw, Hand Tools, Mill Lathe	http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html	(1) Materials exp. System, (2) Elastic Tester, (2) Stress Tester, (2) Tensile Tester, (2) Impact Tester, (2) Comp. Tester, (2) Infrared Tester, (2) Impact Tester, (2) Resonance Tester, (2) Industrial Impact Tester, (1) Strain Tester, (2) Data Acquisition System, (2) Precision Saw, (2) Ball Grinder, (2) Measure 250 Twin, (2) Microscopes	
	ADMF 116	Automation and Robotics I	Robot Controller	http://www.3d.com/3d/3d.html	(1) Fanuc 0TC Controller	
	ADMF 122	Mechanisms III	Motor Control Trainer Timing Belts Reduced Voltage Starting Trainer Electric Sensors Electronic Counters PLC Trainer PLC Trainer	http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html	(1) Motor Control Trainer (2) w/ support BS (1) MS-MED-MS-MEA (1) MS-MEA (1) MS-MEA (1) MS-MEA (1) MS-MEA (1) MS-MEA	
	ADMF 123	Mechanisms IV	Automation and Robotics II	Robot Controller	http://www.3d.com/3d/3d.html	(1) Fanuc 0TC Controller
	ADMF 205	Process in Manufacturing	Sensors Training Set (Inductors, capacitors, resistors, etc. etc.) SIS Mill, CNC lathe Machining & CNC work Center MMA Interface on PLC Trainer Sensors interface on PLC Trainer Controlled interface and driver on PLC Trainer Industrial Electrical Wiring Trainer	http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html http://www.3d.com/3d/3d.html	see ADMF 203 (1) Sensor Training Set (Inductors, capacitors, resistors, etc. etc.) (1) SIS Mill, CNC lathe (1) Machining & CNC work Center (1) MMA Interface on PLC Trainer (1) Sensors interface on PLC Trainer (1) Controlled interface and driver on PLC Trainer (1) Industrial Electrical Wiring Trainer	
	ADMF 216	Projects in Advanced Manufacturing	Robotics Training System	http://www.3d.com/3d/3d.html	(1) Fanuc 0TC Controller	
	ADMF 222	Mechanisms V	Advanced Fundamentals for Technology	http://www.3d.com/3d/3d.html	(1) Fanuc 0TC Controller	
	INDT 100	Introduction to Fluid Power	Motor and Motor Controls	http://www.3d.com/3d/3d.html	(1) Motor Control Trainer (2) w/ support BS (1) MS-MED-MS-MEA (1) MS-MEA (1) MS-MEA	
	INDT 101	Motor and Motor Controls	Fluid Power Basics	http://www.3d.com/3d/3d.html	(1) Motor Control Trainer (2) w/ support BS (1) MS-MED-MS-MEA (1) MS-MEA (1) MS-MEA	
	INDT 104	Fluid Power Basics	Electrical	http://www.3d.com/3d/3d.html	(1) Motor Control Trainer (2) w/ support BS (1) MS-MED-MS-MEA (1) MS-MEA (1) MS-MEA	
	INDT 105	Introduction to the Workplace and Safety	Structural Pneumatics Machining	http://www.3d.com/3d/3d.html	(1) Motor Control Trainer (2) w/ support BS (1) MS-MED-MS-MEA (1) MS-MEA (1) MS-MEA	



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# ADMF 122 – Mechatronics Electrical Proposed Content

## *Prerequisite INDT 113*

VB703-XB00UEN-E1 - Electrical Control 1  
Control Logic  
Sequencing Control  
Timers and Advanced Systems



Interactive Multimedia



Multimedia Curriculum



Student Reference Guide



990-SN1

W11142-XA00UEN-E1 - Electronic Sensors  
Introduction to Electronic Sensors  
Electronic Sensor Applications

EB240-BC00UEN-E1 - Industrial Electronics  
OSCILLOSCOPES



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# *Order and Secure Equipment Centrally to Increase Efficiency and Lower Cost*

- Capitalize with Statewide Buying Power
  - Statewide Request For Proposal (RFP)
  - Detailed Process for Equipment Selection

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# 2015-2106 INDT/AART Equipment Survey

## TC - Electrical

If you are currently or anticipating to offer the ELECTRICAL TC in the near future, please indicate how many of the below or equivalent items you currently have that still have an estimated 5 years of equipment utilization remaining. If there are no plans to offer than please mark each item as N/A.

### 85-MT5 Motor Control or Equivalent

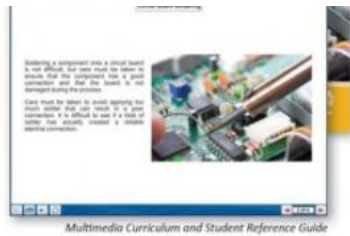


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## 85-MT5-B - Reduced Voltage Starting Learning System or Equivalent



## Allen Bradley Control logic Suitcase Trainer or Equivalent



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# Equipment Replacement Plan

- Replacement Cycle
- Resource Indicators- Needs/Have

Advanced Manufacturing Equipment Replacement Cycle										
Rel.	Machine Description	Condition	Manual	Estimated Life Cycle	Remaining Life Cycle	Year to Replace	Model	Cost to replace	Tag Tech Tag #	Projected Yearly Budget Amount
J201A	Mechanronics Simulation Learning Center	Excellent	Amstron				8746053-13	A136060	Reference Physical Inventory Title Spreadsheet - Janet Staley	
J201A	Mechanronics Learn by w/ HMA	Excellent	Amstron				8746053-13	A136061	Reference Physical Inventory Title Spreadsheet - Janet Staley	
J201A	Mechanronics Learning System	Excellent	Amstron				A136062	Reference Physical Inventory Title Spreadsheet - Janet Staley		
J201A	Mechanronics Learning System	Excellent	Amstron				A136063	Reference Physical Inventory Title Spreadsheet - Janet Staley		
J201A	Mechanronics Learning System	Excellent	Amstron				A136064	Reference Physical Inventory Title Spreadsheet - Janet Staley		
J201A	Mechanronics Learning System	Excellent	Amstron				A136065	Reference Physical Inventory Title Spreadsheet - Janet Staley		
J201A	Indoing Station	Excellent	Amstron				8746053	A136066	Reference Physical Inventory Title Spreadsheet - Janet Staley	
J201A	Control T Quality Station	Excellent	Amstron				8746053	A136067	Reference Physical Inventory Title Spreadsheet - Janet Staley	
J201A	PIC Learning System	Excellent	Amstron				87-001	A136068	Reference Physical Inventory Title Spreadsheet - Janet Staley	
J201A	Control Robot Assembly Station	Excellent	Amstron				A136069	Reference Physical Inventory Title Spreadsheet - Janet Staley		
J201A	Control Station	Excellent	Amstron				804-100-000	A136070	Reference Physical Inventory Title Spreadsheet - Janet Staley	
J201A	Part's Storage Station	Excellent	Amstron				804-100-000	A136071	Reference Physical Inventory Title Spreadsheet - Janet Staley	

Item	Year per week	Year												Total				
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031		2032			
Mechanronics Simulation Center	100,000																	100,000
Learn by w/ HMA	100,000																	100,000
Mechanronics Learning System	100,000																	100,000
Mechanronics Learning System	100,000																	100,000
Mechanronics Learning System	100,000																	100,000
Mechanronics Learning System	100,000																	100,000
Indoing Station	100,000																	100,000
Control T Quality Station	100,000																	100,000
PIC Learning System	100,000																	100,000
Control Robot Assembly Station	100,000																	100,000
Control Station	100,000																	100,000
Part's Storage Station	100,000																	100,000



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AART/INDT TC Equipment / Software	Recommended Units	Estimated Cost Per Unit	Estimated Total Cost
<b>BASE PACKAGE</b>			
Snap on Meter certification kit (20 Multi-Meters and acc'y)	1	\$6,000.00	\$6,000.00
96-MES1 Basic Measurement	2	\$6,500.00	\$13,000.00
T7017 - AC/DC Electrical Systems	6	\$4,342.46	\$26,054.76
90-EC1A - Relay Control Trainer	6	\$2,772.86	\$16,637.16
85-BH - Basic Hydraulic & Basic Pneumatics	4	\$15,242.28	\$60,969.12
950 ME1SB - Mechanical Drives I	4	\$11,317.69	\$45,270.76
950-MPF1 - Mechanical Fabrication 1 Learning System	4	\$9,500.00	\$38,000.00
96-MEC1 - Mechanical Systems 1 Learning System	4	\$6,500.00	\$26,000.00
950-RGB1 - Rigging 1 Learning System	1	\$13,730.77	\$13,730.77
Drill Press (May use Machine Tool lab for fabrication projects)	1	\$1,500.00	\$1,500.00
		<b>TOTAL</b>	<b>\$247,162.57</b>

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AART/INDT TC Equipment / Software	Recommended Units	Estimated Cost Per Unit	Estimated Total Cost
<b>MECHANICAL PACKAGE</b>			
85-IH Intermediate Hydraulic Trainer	4	\$4,752.88	\$19,011.52
85-AH Advanced Hydraulic Trainer	1	\$2,500.00	\$2,500.00
85-EH Electro Hydraulic Trainer	4	\$4,000.00	\$16,000.00
85-IP Intermediate Pneumatics	4	\$1,992.73	\$7,970.92
85-AP Advanced Pneumatics	1	\$2,500.00	\$2,500.00
85-EP Electro Pneumatics	4	\$4,000.00	\$16,000.00
95-ME2 - Mechanical Drives 2 Learning System	4	\$5,760.15	\$23,040.60
95-ME3 - Mechanical Drives 3 Learning System	4	\$5,314.96	\$21,259.84
95-ME4 - Mechanical Drives 4 Learning System	4	\$7,325.66	\$29,302.64
95-ME2A - Laser Shaft Alignment Learning System	2	\$12,660.51	\$25,321.02
95-ME5A - Vibration Analysis Learning System	2	\$5,587.52	\$11,175.04
950-PS1 - Piping Learning System	2	\$12,000.00	\$24,000.00
95-RGB2 - Rigging 2 Learning System	1	\$1,780.74	\$1,780.74
		<b>TOTAL</b>	<b>\$199,862.32</b>

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AART/INDT TC Equipment / Software	Recommended Units	Estimated Cost Per Unit	Estimated Total Cost
<b>ELECTRICAL PACKAGE</b>			
85-MT5 Motor Control	4	\$8,765.48	\$35,061.92
85-MT5-A - Motor Braking Learning System	2	\$3,476.68	\$6,953.36
85-MT5-B - Reduced Voltage Starting Learning System	2	\$1,568.75	\$3,137.50
85-MT5-C - Variable Frequency AC Drive Learning System	2	\$2,111.45	\$4,222.90
85-MT6 Industrial Electrical	2	\$15,000.00	\$30,000.00
85-MT7 Power Distribution	2	\$18,000.00	\$36,000.00
85-MT6BB - Industrial Soldering	4	\$1,500.00	\$6,000.00
Allen Bradley Controllogix Suitcase Trainer	4	\$6,669.00	\$26,676.00
85-SN1 - Electronic Sensors Learning System	4	\$1,849.42	\$7,397.68
		<b>TOTAL</b>	<b>\$155,449.36</b>

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AART/INDT TC Equipment / Software	Recommended Units	Estimated Cost Per Unit	Estimated Total Cost
<b>PROCESS PACKAGE</b>			
T5552 - Level and Flow Process Control Learning System	1	\$14,158.69	\$14,158.69
T5555 - Pressure Process Control Learning System	1	\$16,789.82	\$16,789.82
Simtronics DSS 100 software	1	\$6,000.00	\$6,000.00
DTU-1 Distillation Training unit w/chiller Bayport	1	\$90,000.00	\$90,000.00
CT-1 Acrylic cooling tower w/ heater and gauges Bayport	1	\$40,000.00	\$40,000.00
PTFD Pressure temp., flow demonstrator Bayport	1	\$45,000.00	\$45,000.00
FCCU Fluid bed catalytic cracking unit Bayport	1	\$23,000.00	\$23,000.00
HECT-2 Heat Exchanger circulation trainer Bayport	1	\$20,000.00	\$20,000.00
LOTO lock-out tag-out Trainer Bayport	1	\$10,000.00	\$10,000.00
BULL EX/equipment: Laser Fire extinguisher trainer	1	\$10,000.00	\$10,000.00
Simtronics DSS 100 software add-ons SPM-2500,1200,2800 & VTE	1	\$25,000.00	\$25,000.00
HTDU Heat Transfer demo. Unit	1	\$35,000.00	\$35,000.00
Misc.valve, cutaways and experiments	1	\$50,000.00	\$50,000.00
		<b>TOTAL</b>	<b>\$384,948.51</b>
	<b>ALL TC Pathways</b>	<b>Total Costs</b>	<b>\$1,517,625.00</b>

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# *Review and Improve Program Design and Delivery Concept*

- Structure Scheduling-Blocked Format
- Curriculum redevelopment
  - Nationally Recognized Certifications
  - Flip Model w/simulation
    - Heavy lab focused with Industry relevance
- Tech Math, Tech Communication, Tech Remediation

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# Block/Structured Scheduling Features

## *Traditional Pathway –OLD*

- Tech Programs 10% Graduation Rate
- Over 50% Electives in Pathways
- Common for courses to cancel
- No sequencing – confusing for students
- Delivery method was archaic - Min IT
- All 2 lecture – 2 lab w/16 Week format
- Not conducive for multiple entry points
- Minimal Stackable credentials/Certs
- Gen Ed/remediation not contextualized

## *Structured/Block Schedule - NEW*

- Pilot Programs 70% + Graduate Rate
- TC's blocked and no electives
- Reduces/eliminates cancelled courses
- Semester sequencing
- Contextualized Format - Flip format
- 8-week delivery format w/more lab focus
- Allows for multiple entry points
- Redesigned with stackable credentials
- Contextualized & industry-focused Gen ED

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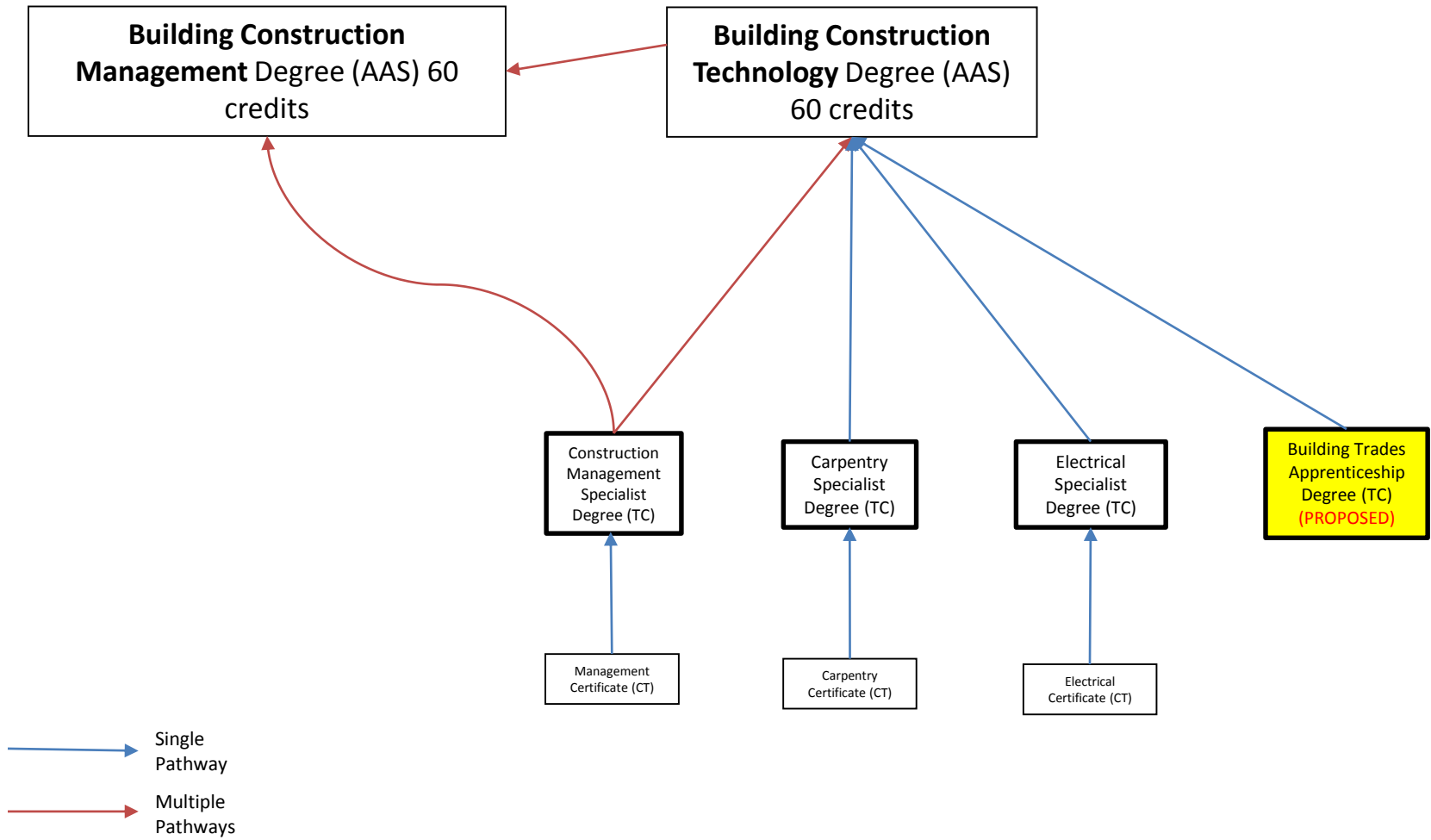


# Process to Convert Traditional Scheduling to Block/Structured Scheduling

- Coordinate with other technology and general education departments on entire process
- Align common/shared courses from all Tech Programs
  - Technical and Gen Ed courses
- Block schedule these classes in a day/afternoon and or night block format
- Tech programs will use this template to block their remaining courses in same structure

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# Success Rates

## *Advanced Automation Robotics & Technology (One of many Cohorts throughout the state)*

- Implemented in Fall 2014 at Ivy Tech Northeast
- First cohort size – 17 students
- Fall to Spring retention = 82%
- Fall to Fall Retention = 82%

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# Desired Results-Future State

Fully implemented processes and procedures for ordering equipment, maintaining labs, developing curriculum and connecting curriculum to industry.

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# Metrics

To identify and implement the most appropriate tools to accurately measure institutional effectiveness and its impact on student engagement and learning. This expectation will be met through the collection of reliable data using established instruments and metrics fostering the growth of the division.

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# Metrics Team Action Plan

- What did we find - Discovery?
- What does the data mean?
- Establishing the New Norm?



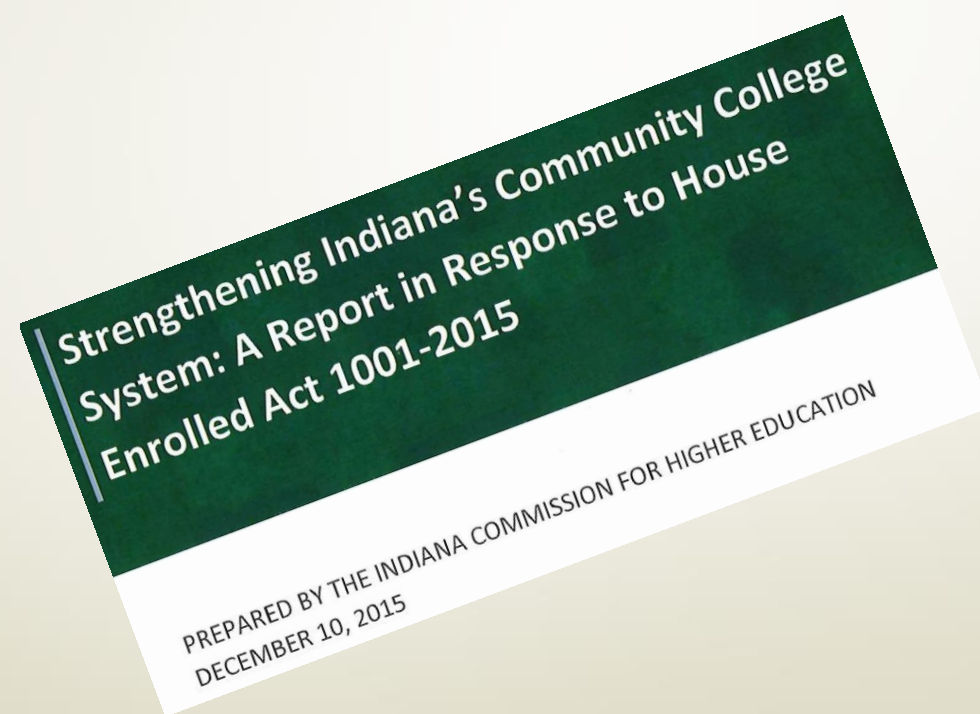


# Strengthening Indiana's Community College System: A Report in Response to House Enrolled Act 1001-2015

PREPARED BY THE INDIANA COMMISSION FOR HIGHER EDUCATION  
DECEMBER 10, 2015

Ivy Tech recently underwent a significant review of all academic programs

What does the data mean?



- DWD and CHE data internalized

DWD = Indiana Department of Workforce Development  
 CHE = Commission for Higher Education

- Graduation rates vs. Credential

### Attainment

	2016	2017	2018	2019	2020	2021
<b>Student Demand</b>	Enrollment of at least 30 students per program, per region					
<b>Employer Demand</b>	Job placement measurement not available		Job placement rate of at least 60%		Job placement rate of at least 75%	
<b>Effectiveness (2-year degrees)</b>	25% within 6 years	30% within 6 years	35% within 6 years	25% within 3 years	35% within 3 years	50% within 3 years
<b>(shorter-term credentials)</b>	For sub-associate programs, the time horizon for the effectiveness metric should be equal to 300% of published program length (2016-2018) and 150% of program length (2019-2021)					

Ivy Tech may elect to utilize additional criteria, such as the Aspen Institute's metric of degree production per full-time equivalent, to use in its ongoing program review.

This looks like Success to the Technology Division...

**2013-14 Graduating Class: Average Wage by Region and Division**

	Business and Public Service	Health Science	Technology	University and Transfer	Total
Northwest	\$42,746.83	\$43,636.02	\$84,611.24	\$31,165.27	\$57,283.15
North Central	\$48,641.68	\$41,006.32	\$85,192.30	\$36,436.93	\$52,505.97
Northeast	\$46,998.25	\$41,791.07	\$64,641.70	\$33,562.83	\$46,352.78
Lafayette	\$44,603.19	\$43,294.62	\$79,974.43	\$29,975.49	\$49,541.31
Kokomo	\$45,489.35	\$42,211.67	\$70,675.36	\$46,528.71	\$47,445.16
East Central	\$44,439.62	\$39,349.85	\$57,800.42	\$33,557.28	\$40,681.59
Wabash Valley	\$40,732.89	\$44,679.39	\$78,726.11	\$33,550.35	\$48,457.80
Central Indiana	\$49,012.09	\$53,362.15	\$68,645.44	\$43,228.78	\$50,439.25
Richmond	\$47,332.53	\$42,653.87	\$56,500.00	\$36,220.37	\$44,889.83
Columbus	\$44,331.93	\$43,953.20	\$88,794.32	\$40,652.21	\$46,067.86
Southeast	\$45,015.45	\$39,792.35	\$64,271.89	\$35,262.92	\$41,708.97
Southwest	\$42,648.87	\$42,499.86	\$91,162.83	\$34,624.28	\$53,535.78
Sellersburg	\$45,540.28	\$42,452.16	\$58,594.79	\$38,887.89	\$44,259.58
Bloomington	\$47,518.53	\$39,212.66	\$66,550.06	\$33,083.80	\$42,783.47
<b>Statewide</b>	<b>\$45,805.18</b>	<b>\$43,376.00</b>	<b>\$77,383.54</b>	<b>\$37,242.27</b>	<b>\$48,506.73</b>

# Establishing the New Norm

- Sustaining the metrics going forward
- Dashboard metrics
  - Enrollment
  - Demographic
  - Accreditation
  - Faculty
  - Program Needs
  - Student Opportunities
  - Transfer and Employment
  - Assessment
  - Budget Request
  - Space Request
  - EMSI Projection (Labor Market Data)
  - Jobs Detail (Data Source: EMSI)

# Technology Division Plan

Vision	Strategic Objectives	Strategic Initiatives	Desired Results Future State
<p>Ivy Tech Technology and Applied Science Division will be innovative leaders recognized as the first choice for unique business-driven technical education and training provided through flexible delivery with a premium return on investment. The primary goals are to decrease the skills gap and enhance the quality of life by increasing opportunities.</p>	<p><b>Marketing – recruiting and retaining customers</b> Grow our industry recognized, high demand programs recruiting and retaining students and corporate partners who will enjoy a good return on their investment.</p>	<ul style="list-style-type: none"> <li>Marketing Toolkit for each region to take to events</li> <li>Program messaging, marketing, and print materials</li> <li>Digital and television ads</li> <li>Promote uniqueness – stackable credentials, national certs, state of the art equipment and labs</li> <li>Applied technical training, internships and apprenticeships</li> <li>Align with industry and work with Corporate College</li> </ul>	<p>The premiere first choice in technical education and training – model for the state and country. Fully executed marketing plan. Positive brand recognition of the delivery methods. Pipeline for career tech ed students. Increased enrollment</p>
	<p><b>Faculty and Staff – recruiting and retaining talent</b> To grow the division and positively affect completion rates we must attract and retain talented faculty and staff. We must also structure region functions to support student success and alignment with industry.</p>	<ul style="list-style-type: none"> <li>Add one faculty member per region and Assistant Dean</li> <li>Work with HR to explore non-traditional recruiting</li> <li>Increase technology faculty salaries \$49,000 - \$80,000 new hire</li> <li>Increase pay for adjuncts and increase adjunct pool</li> <li>Early orientation for adjuncts</li> <li>Add lab techs</li> <li>Increase and mandate faculty development</li> <li>Orientation and mentoring for new deans</li> </ul>	<p>Fully executed staffing plan including support positions. Increased full time faculty to student ratio. Increased faculty retention rate and deep and diverse adjunct faculty pool shared with Corporate College. Increased student retention rate and internships.</p>
	<p><b>Equipment and Quality Delivery</b> To put processes and procedures in place to continuously improve the division and increase efficiencies reducing costs and improving sustainability.</p>	<ul style="list-style-type: none"> <li>Process mapping equipment to program needs – current and future</li> <li>Order and secure equipment centrally to increase efficiency and lower cost</li> <li>Review and improve program design and delivery concept</li> <li>Utilize program improvement measures in place for ATMAE</li> <li>Fully develop and utilize advisory committees</li> <li>Implement equipment replacement plan</li> </ul>	<p>Fully implemented processes and procedures for ordering equipment, maintaining labs, developing curriculum and connecting curriculum to industry.</p>
	<p><b>Metrics</b> To identify and implement the most appropriate tools to accurately measure institutional effectiveness and its impact on student engagement and learning. This expectation will be met through the collection of reliable data using established instruments and metrics fostering the growth of the division.</p>	<p>Base decisions and direction using measures:</p> <ul style="list-style-type: none"> <li>Annual number of associate degrees</li> <li>Annual number of technical certificates</li> <li>Annual number of career certificates</li> <li>Annual number of workers trained</li> <li>Annual number of students placed in careers</li> <li>Student satisfaction</li> <li>Faculty and staff satisfaction</li> <li>Employer satisfaction – including Corporate College clients</li> <li>Employers served</li> <li>Impact of learning outcomes</li> <li>Transfer student success at a four-year institution</li> <li>Annual number of process improvement projects and waste reduction</li> <li>Increase in staff cross training</li> <li>Increase in space and resource need acquisition aligned with student success research and data</li> <li>International students</li> </ul>	<p>Continuously working with key partners and stakeholders to identify the most appropriate tools to accurately measure institutional effectiveness and its impact on learning outcomes of technology students in order to increase the effectiveness of the division's programs and improve student success and employer satisfaction.</p>

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# THANK YOU!



CHANG



# THANK YOU

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*"A leader is best when people barely know he exists, when his work is done, his aim fulfilled, they will say:*

***We did it ourselves.*" - Lao Tzu**



