



**Jackson State
Community College**

**Industrial Technology/General
Technology Annual Advisory
Committee and
AMT Maintenance/Engineering
Sub-Committee Meeting**




March 31, 2014
7:00 – 8:30 a.m.
Jackson State McWherter Lab

Breakfast Meeting Agenda

- **Welcome and Introductions** - Reggie Davis
JSSC Industrial Technology Advisory Committee Chairman
- **Old Committee Business**
 - AMT overview – Terri Messer
 - McWherter lab equipment update – Jack Laser
 - High school recruiting campaign highlights – Cathi Roberts
 - AMT application update and addendum – Cathi Roberts
- **New Business**
 - Program Updates -Terri Messer
 - Enrollment
 - Graduation
 - Exit Exam Results
 - Curriculum Review – Richard Skelton and Roger James
 - Industrial Tech MSMT cohort course rotation
 - Electrical topics validation
 - Mechanical, pneumatics/hydraulics, motors topics needed
 - Specific course analysis of EET 130, IT 150 and possibly EET 180 and MET 110
 - Need for JSSC to visit industry maintenance teams
 - Incumbent Worker Training Opportunities – Jack Laser
- **Feedback** – Reggie Davis

**Industrial Technology- Multi Skilled
Maintenance Technician –
Advanced Maintenance Technician
Co-op**



- All JSSC industrial tech, MSMT students will take the same set of required courses leading to an associates of applied science degree.
- Courses consist of theory and hands-on lab activities using new equipment upgrades
- There will be a morning and afternoon cohort of students taking four college level classes each term.
- The students accepted into the AMT Cohort group will be allowed to work along the maintenance professionals at one of the fifteen company consortium firms.

JSSC AMT Consortium



The Solution
Vision the final product

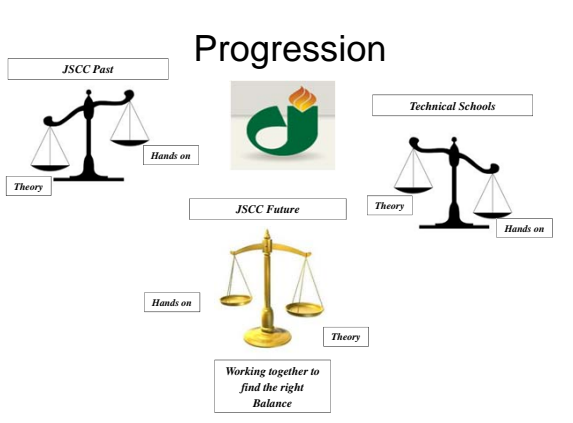
**NEXT GENERATION
Skilled Team Member**

- Totally Multiskilled**
Electrical / Fluid Power / Mechanics / Fabricator
- Strong Math Capability**
Upper 1/3 Nationally
- Strong Reading Capability**
Minimum 12th Grade Equivalent
- Fast Technical Learner**
Can learn, apply, improve, learn again quickly
- Uses & Learns with Digital Media**
Digital media is the preferred method
- Strong Problem Solver**
Can fully explain problem solving and methods
- Effective Verbal & Written Communicator**
Group & 1-on-1, develops high quality written material
- Effective Interpersonal Skills**
A conflict resolver
- Natural Teamworker**
Prefers working as part of a team
- Qualified for the Next Level**
Has Associate Degree / All required company training complete



TARGET: 100% of Maintenance Force

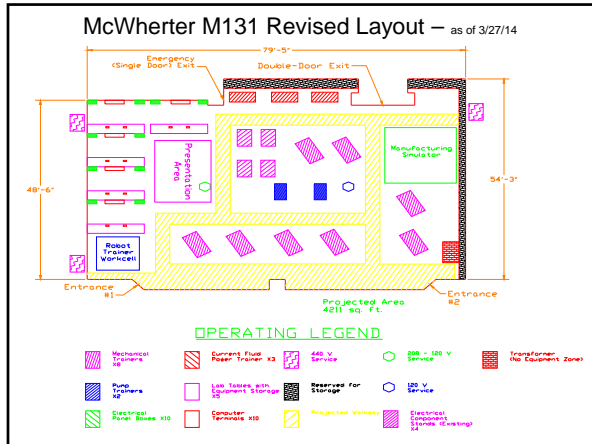
Progression



JSSC Past: Theory vs Hands on

JSSC Future: Theory vs Hands on

Working together to find the right Balance



**Revised lab setup...to be used in:
EET 130, EET 170, EET 200 and EET 260**



NEW multi-purpose trainer to be used in A LOT of courses:

- EET 130
- EET 170
- EET 180
- EET 200
- EET 230
- EET 260
- IT 150



Motor Control Trainers – to be used in EET 200 mounted on existing A frames

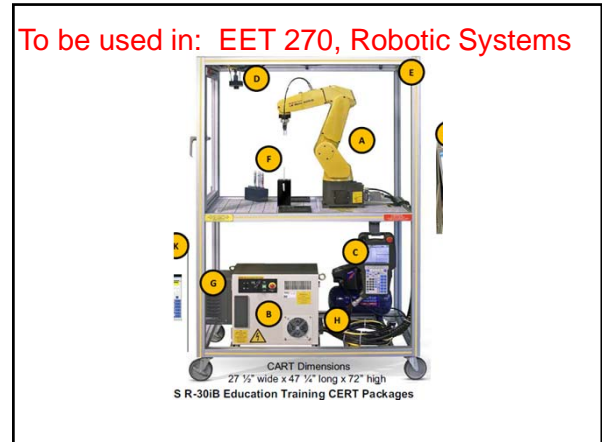


JSCC existing trainers to be used in EET 240, Fluid Power



New trainer to be used in: EET 240 and IT 150, along with other JSCC existing trainers





High School Recruiting Campaign Highlights

Between October 15 and February 28:

- Have reached 1,054 people
- Have recruited in 24 local high schools
 - 9 consortium firms actively participated in the recruitment presentations along with JSCC faculty/staff
- Have spoken at 8 local civic, chamber events
- Have continued to seek additional industry consortium members... Pictsweet in Bells joined the group just last week!

AMT Application Update

Applications Received: 8 Applications Expected: 13

Road Blocks:

- ❖ Disconnect between JSCC and Career and Technical Ed Dept. in individual school systems
- ❖ Inadequate communication with in school systems
- ❖ School closings – over 8 days for inclement weather, 19 holidays, 8 break days
- ❖ Working with ACT Test dates and scores
- ❖ Lack of knowledge and understanding about manufacturing

Paving The Way:

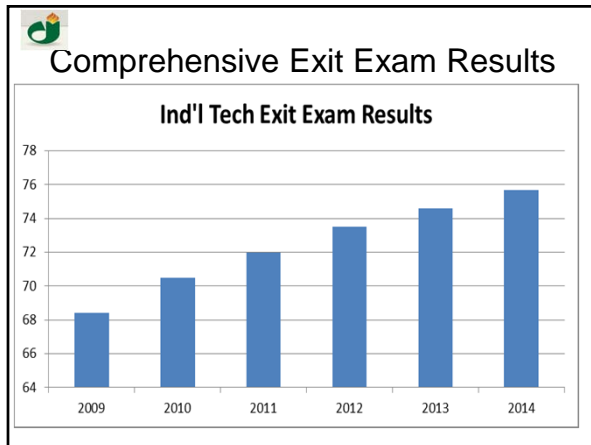
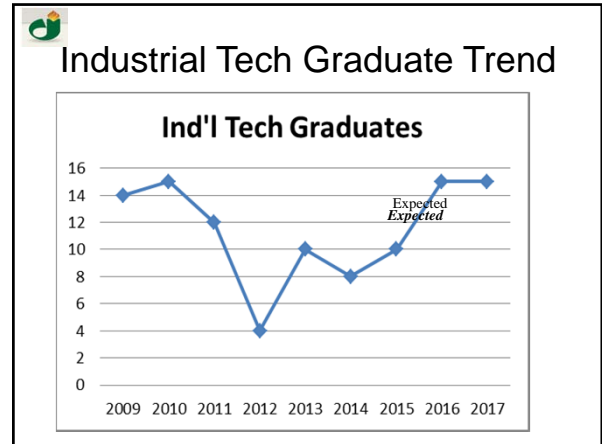
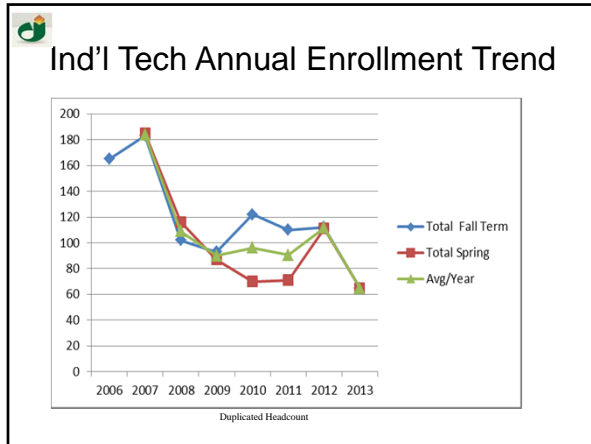
- ❖ Hosted the regional CTE Directors meeting
- ❖ Attempted verbal follow-up with all CTE Directors.
- ❖ Offered alternative method of testing.
- ❖ Delivered AMT presentations in 24 high schools, 8 professional organizations, Cable TV, and radio show.
- ❖ Held a Technology Youth Summit for the 14 county service area's public high schools to set stage for future applicants.

Progress:

- ❖ Raised community and educational awareness of manufacturing needs, technology, and career opportunities
- ❖ Increased media coverage
- ❖ Improved lines of communications indicated by the greater number of phone calls and emails
- ❖ Greatly supported Technology Youth Summit: 16 schools, 110 participants (60% in Manufacturing/Engineering track)

Suggestions:

- ❖ Extend application deadline until April 15, 2014
- ❖ Accept JSCC equivalency test scores for consideration in acceptance into the AMT cohort
- ❖ Accept additional students, not participating in the work, experience as alternates
- ❖ Offer an afternoon cohort for interested students not meeting the program criteria



JSCC Industrial Technology – Associates of Applied Science, MSMT Curriculum

13 Technical Classes:

- EET 130- 1st yr
- IT 150 – 1st yr
- EET 150 – 1st yr
- EET 170 – 2nd yr
- EET 180- 1st yr
- EET 230 – 2nd yr
- EET 297 – 2nd yr
- EET 200 - Mid
- EET 240 – 2nd yr
- EET 260 – 2nd yr
- EET 270 – 2nd yr
- MET 110 – 1st yr
- MET 155 - Mid

7 General Education Classes:

- English Comp
- Speech
- Math Statistics
- Non-Calculus Physics
- Humanities
- Microeconomics
- Computer App.

JSCC Future

Hands On Theory

Working together to find the right Balance

JSCC Industrial Technology MSMT Solution:

Vision the final product

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TARGET: 100% of Maintenance Force

JSCC IT Curriculum = Your Future Maintenance Team Member

- **Totally Multi-skilled**
Electrical / Fluid Power / Mechanics / Fabricator

↓

EET 130
155
IT 150
EET 170
EET 180
EET 230

↓

EET 240

↓

EET 150

↓

MET

- **Strong Math Capability – 19 ACT, or equivalent, required to take first class, EET 130**



Ind'l Tech – MSMT Course Rotation

- Reference program information.
- Five, 16 week terms

Fall 2014 Cohort (Aug – Dec 2014)			
TR	First Year	Fall Semester	Credits
8:00-9:15	CIS 101	Software Applications	3
9:30-10:45	EET 130	AC/DC Circuits	3
11:00-12:15	IT 150	Industrial Circuits	3
12:30-1:45	ENGL 1010	English Comp I	3
		Total Credits	12

Ind'l Tech – MSMT Course Rotation

Spring 2015 Cohort (Jan – May 2015)			
TR	First Year	Spring Semester	Credits
8:00-9:15	EET 180	Programmable Logic Controllers I	3
12:30-1:45	MATH 1530	Statistics and Probability	3
11:00-12:15	EET 150	Electromechanical Devices	3
9:30-10:45	MET 110	Intro to Drafting & Auto CAD Applications	3
		Total Credits	12

IT 150 – Industrial Circuits

- **Course Description:** This course will provide an overview of various industrial systems and sub-systems and how they are used in industrial applications today. Topics include dc and ac theory, transformers, motors, PLC's, hydraulics, pneumatics, with emphasis on workplace safety and OSHA regulations.

IT 150 Learning Objectives	
a.	A study of safety in the workplace will be covered as it relates to industry with special focus on how accidents happen and how that affects productivity and competitiveness.
b.	OSHA regulations will be studied in detail as it relates to stress hazards, falling and lifting hazards, electrical and fire hazards. We will cover how companies and employees can prompt a safe work environment following the rules of safety.
c.	Students will be taught how to apply and use the safe practices of lockout and tag out procedures.
d.	To develop a general understanding of the different types of systems that are used in industry today and how these systems interact with one another.
e.	A study of different systems like electrical, hydraulic, pneumatics, motors, mechanical, PLC's, and other similar systems and sub-systems.
f.	A development of good troubleshooting skills as related to each system and sub-system.
g.	To provide a general understanding of schematic symbols and reading schematic diagrams.

EET 130 – AC/DC Circuits

- **Course Description:** This course covers the principles of DC/AC circuit analysis. Core concepts covered include voltage and current sources, series and parallel circuits Ohm's law, Kirchhoff's voltage and current laws, single and three phase AC circuits are analyzed, capacitors and inductors. Time constants, resonance, transient analysis and simple filters are also covered.

EET 130 Learning Objectives	
a.	To impart an understanding of basic electrical theory.
b.	To provide practical examples of common electrical task found in industry.
c.	To provide a background for further study of related courses.
d.	To discuss and provide hands-on experience in DC/AC circuit analysis.
e.	Identify an AC signal and the components used in an AC circuit.
f.	Describe the component level reaction to AC.
g.	Apply component knowledge to construct an AC circuit.
h.	Troubleshoot unexpected component reaction in an AC circuit.
i.	Evaluate circuit components for expected results.

EET 180 – PLC 1

- **Course Description:** This course is an introduction of PLC's (Programmable Logic Controllers) and their usage in modern industrial applications. Memory addressing schemes and ladder logic are discussed in detail. Proper PLC installations and maintenance are also covered.

EET 180 Learning Objectives	
a.	To impart an understanding and overview of PLC's (Programmable Logic Controllers).
b.	To familiarize the student with various PLC hardware components and system arrangements.
c.	To familiarize the student with PLC number systems and fundamentals of control logic.
d.	To provide an understanding of basic PLC programming techniques using the instruction set.
e.	Develop fundamental PLC wiring diagrams and ladder logic programs using industrial standards.
f.	To understand the proper use of timers and counters in various PLC applications.
g.	To provide the student with various programming examples and develop programming and troubleshooting skills during lab exercises where students interact with operating PLC's.

MET 110 – Intro Drafting/Auto CAD

- This course provides knowledge and practice in the methods and standards employed to develop technical drawings and interpret blueprints for various electro-mechanical projects. Topics include drawing interpretation, drafting practices, line convention, dimensioning and tolerancing of technical drawings per ANSI Y14.5M-1994, orthographic projections, 2-D multiview drawings, and an introduction to basic Geometric Dimensioning and Tolerancing. This instruction will be based on the use of Auto CAD to perform these tasks.

MET 110 Learning Objectives	
a.	To provide the student with an understanding of the universal graphic language, the means by which the designer, technician, and engineer develop and record ideas for transmission to those who will transform them into reality.
b.	To provide the skills necessary for the development and execution of drawings through the use of computer aided design software, AutoCAD.
c.	To familiarize the student with American National Standards Institute (ANSI) standards for drawing, dimensioning, and tolerancing.
d.	Familiarize students with aspects of blueprint reading.

EET 150 – Electromechanical Devices

- EET 150 COURSE DESCRIPTION:
STILL UNDER CONSTRUCTION!

Students will study basic principles of mechanical systems, component operation, system design, component installation and adjustment, troubleshooting, maintenance, and applications.

Components include:

fractional horsepower and heavy duty style components,

3 types of bushings,

7 types of couplings,

single and multiple belt and chain drives,

silent chains,

synchronous and HTD belt drives,

spur gear drives, manual lubrication,

plain and roller bearings,

seals, and

gearboxes.

Students will learn how to perform shaft alignment using various techniques.



Questions?

