National Symposium of 21st Century Community Colleges

Strengthening Workforce Development in India for the Global Economy

Model For Successful Technical Programs MC

Ed Roberts

March 14, 2011

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Each Program Evaluates The Need

- Local and regional labor force needs are determined
  - Businesses identify labor shortages
  - Trade groups / associations seek help addressing shortages of skilled labor
  - Individuals seeking training
  - State and Federal labor force data indicate shortages of workers
  - New jobs are evolving with new technology
  - New businesses are established in region
- Are other training providers addressing the needs

Partnerships Are Formed With Local Relevant Businesses

- Define the industry need
  - What are the employment opportunities
  - What is the education level that is relevant
- Participate in curriculum development
- Identify other interested partners
- Provide resources
  - Expertise
  - Tools and equipment
  - $$$$$
- Source of qualified instructors

Programs Should Meet Industry Standards

- Instruction should qualifie individuals for certification
- Curriculum should prepares individuals for licensing
- Program recognition or certification of educational practices

Programming Decisions

- **Associate of Applied Science Degrees (Credit)**
  - **Certificate options within the Degree curriculum**
- **Continuing Studies (Non-credit)**
  - **Certificate Programs**
- **Both credit and non-credit**

Facilities

- Representative of industry standards
- Meet program certification requirements
- Appropriate tools and equipment that mimic industry applications
- Space constraints – real estate and money

Faculty

- Industry experience – 5-7 years minimum
- Credentials – hold license or certificate
- Industry training
- College degree

Program Delivery

- Long or Short Term Training
- Customized Contract Training for Industry
- On-line Distance Education (Blended instruction)
- Apprenticeship Related Instruction
- On-site Training

Dhanyavad!

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Automotive Technology

Debra Anderson

March 14, 2011

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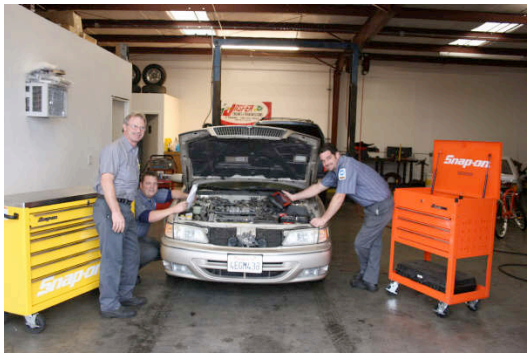
Industry Needs

- The goal for Automotive business owners:
  - Provide good service
  - Do this at a fair price
  - While maximizing profits
  - Safeguard the future health of the business

- Industry challenges in which profits can be reduced or lost:
  - Automotive service and repair industry is cyclical
  - Technician quality
  - Shop reputation



Automotive Technology Program

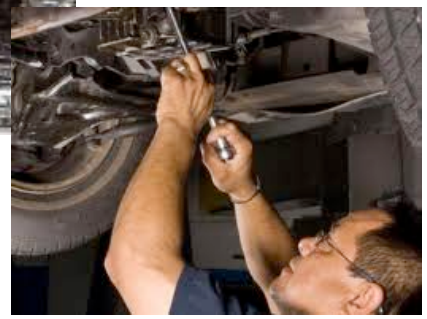
- What we do:
  - The Program prepares individuals for entry into the automotive service and repair industry.

- Who we serve:
  - Students
  - Technicians
  - New automobile dealers
  - Used automobile dealers
  - Independent repair facilities
  - Franchise repair facilities
  - Government / non-government fleets

Automotive Technology Program

- Program Outcomes
  - ASE (Automotive Service Excellence)
  - Automobile repair technician certification
  - The technicians industry credentials
- Program Standards:
  - NATEF (National Automobile Technician Education Foundation)
  - Automotive program certification
  - Automotive training credentials
- Montgomery College is a Master NATEF Certified Program
  - NATEF requires 1080 hours of instruction
  - Montgomery College delivers 1140

Automotive Technology Program



- Automotive Business Models
  - New automobile dealers
  - Used automobile dealers
  - Independent repair facilities
  - Franchise repair facilities
  - Government /non-government fleets

- Other Training Models
  - Motor company training program
  - Parts manufacturer, distributor, OEM supplier

Program Description

- Our Approach
  - Generic training, self sufficient from other training models
  - Training that serves all automotive business models

- Faculty
  - ASE Master Certified technicians
  - Degree holding education experts
  - Develop and deliver curriculum which best serves all likely employers

- Automotive Major Options
  - Automotive associates degree option
  - Automotive specialty area certificate options

Program Description

- 14 Automotive Courses Designed to:
  - Develop basic and most employable skills initially
  - Award student success nearly every semester
  - Allow students to acquire ASE certifications as they move through the program
  - Improving student marketability and starting pay rate

- Types of students
  - Working technicians --ASE transfer for college credit
  - High school students --no previous automotive training
  - High school students –with 2 years automotive training

Curriculum

- Automotive Courses

– Introduction to Automotive Technology	3 credit hours
– Brakes	5 credit hours
– Suspension and Steering	5 credit hours
– Automotive Electricity I	4 credit hours
– Battery/Staring/Charging	3 credit hours
– Chassis Circuits	4 credit hours
– Engine Repair	4 credit hours
– Basic Engine Performance	4 credit hours
– Engine Performance II	4 credit hours
– Engine Performance III	4 credit hours
– Automotive HVAC	4 credit hours
– Manual Drive Train and Axles	4 credit hours
– Automatic Transmissions/Transxales	5 credit hours
– Auto tech Practicum (work place based)	1 credit hours

Total: 55 credit hours

Curriculum

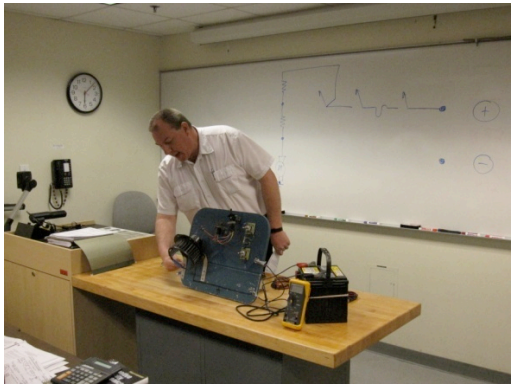
- General Education Courses
  - Variety required
  - Gen. Ed required -**Total 23 credit hours**

- Awards
  - A.A.S. Degree in Automotive Technology **-68 credit hours**
  - Four (4) MC Specialty Area Certificates **-14 - 25 credit hours**

Program Description

- Automotive Courses
  - Day
  - Night
  - One (1) day or night a week
  - 15 week blocks of time called semesters
  - Lectures -- present concepts and theory
  - Labs -- require that students perform on-vehicle and on-bench exercise

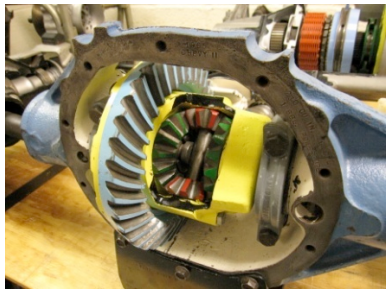
- Lab Mimics Real World Shop Practices
  - MC Program Fleet
  - 50% of training delivered in the lab



- Student Assessment
  - Written Examination
  - Practical Examination
  - ASE Certification

Facility

- Instructional Areas
  - Classrooms
  - Lab / Shop
  - Climate controlled
  - Presentation media
  - Classroom storage
  - Training Aids
  - 12 bays, Hoists
  - Staffed tool room
  - Hand tools, specialty equipment, lighting , safety equipment, ventilation



Facility

- Non Instructional Area
  - Storage for large components and assemblies
  - Audio visual resource room
  - Private faculty and staff offices
  - Meeting room
  - Presentation space
  - Corporate partners, customized space
  - Storage lot for MC fleet
  - Program maintains a fleet of 26-30 vehicles

Emerging/Changing Technologies

- Driven by Industry Change
  - Advisory board – industry professionals
  - Industry partners

- Process for change
  - Industry Experts Hired
  - New Course Offered -"special topics"
  - Feedback and Interest Evaluated
  - Adherence to Industry Confirmed
  - Course Added to Automotive Curriculum

Emerging/Changing Technologies

- Alternative Fuel Vehicle Technology Training
  - Grant Awarded
  - Five (5) vehicles added to fleet
  - College supported component/training aid purchase

- The Technologies:
  - Hybrid Electric Vehicles (HEV's)
  - Electric Vehicles (EV's)
  - Compressed Natural Gas (CNG)
  - Lt. duty diesel (clean diesel)

- HEV's and EV's Course offered:
  - Fall (September) 2011

- Other Alt. Fuel Technologies 2012

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Spotlight on Building and Construction Technology Program

John Phillips

March 14, 2011

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Building and Construction - Industry Needs

- The construction industry requires individuals with strong technical aptitude and skills
- Our instructors have many years of experience in their respective trade areas
- A well trained workforce is critical to construction growth and progress, especially as technology changes
- Construction advisory committee assures relevance of curriculum
- Professional seminars strengthen industry

Building and Construction - Program Description

- Day, evening, and Saturday classes
- Carpentry, Electrical Wiring, or Heating, Ventilation, and Air Conditioning are primary tracks
- Letter of Recognition (8 credit-hours), Certificate (20-23 credit-hours) or Associate of Applied Science Degree (60 credit-hours)
- Non-credit course options
- Formal Apprenticeship options
- Approximately 80 courses are offered

Building and Construction - Course Examples

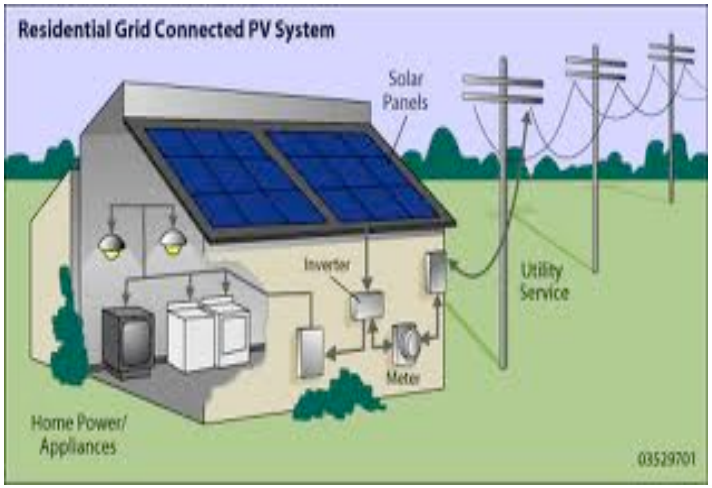
- Fundamentals of Carpentry; Fundamentals of Electrical Wiring; Fundamentals of Plumbing; Fundamentals of Refrigeration
- Air Conditioning and Heat Pumps; Heating Systems
- National Electrical Code; Building Codes and Standards
- Apartment Maintenance Technician Certification
- Remodeling and Interior Finishing
- Environmental Protection Agency Certification for CFC Recovery
- Licensing Prep

Building and Construction Technology - Facilities

- Located in the Gudelsky Institute for Technical Education
- Multiple classrooms for lecture , lab, or a combination of activities
- Lecture class sizes range from 12 up to 80 students
- Lab classes have a maximum of 15-18 students
- Latest technology, tools and materials are utilized for real-world activities

Emerging Technologies

Solar Photovoltaic Design and Installation

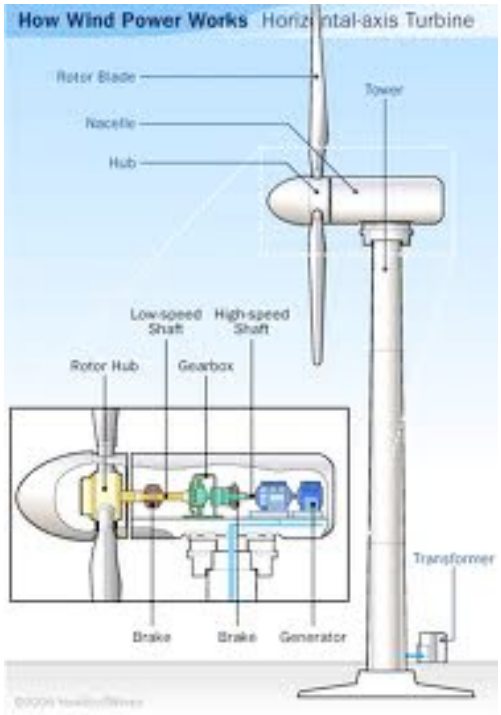


Emerging Technologies

Solar Thermal Heating and Hot Water

Emerging Technologies

Wind Technology



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Spotlight on Applied Technologies:
The Management of Construction Program

Mario Parcan

March 14, 2011

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Management of Construction: Industry Needs

- Maryland needs employees with appropriate technical skills
- Montgomery County employers are constantly offering employment to our students and graduates
- Our professors act as liaison members to industry
- Our industry is represented in our Industry Advisory Committee
- Our Alumni group assists with networking opportunities and job placement of our graduates

Management of Construction: Program Description

- Day and evening classes leading to a Certificate (33 credit-hours) or Associate of Applied Sciences Degree (60 credit-hours)
- During the current Spring 2011 Semester: 10 courses daytime and 10 courses in the evening

- Our Curriculum:
  - Fundamental courses = 100 Level
  - Advanced courses = 200 level
  - General Education courses

Management of Construction: Our Facilities

- The Management of Construction program located in the Technical Center
- Two dedicated classrooms (Labs) and multiple classrooms
- Construction Management Lab
- Construction Computer Lab

Management of Construction: Our Facilities

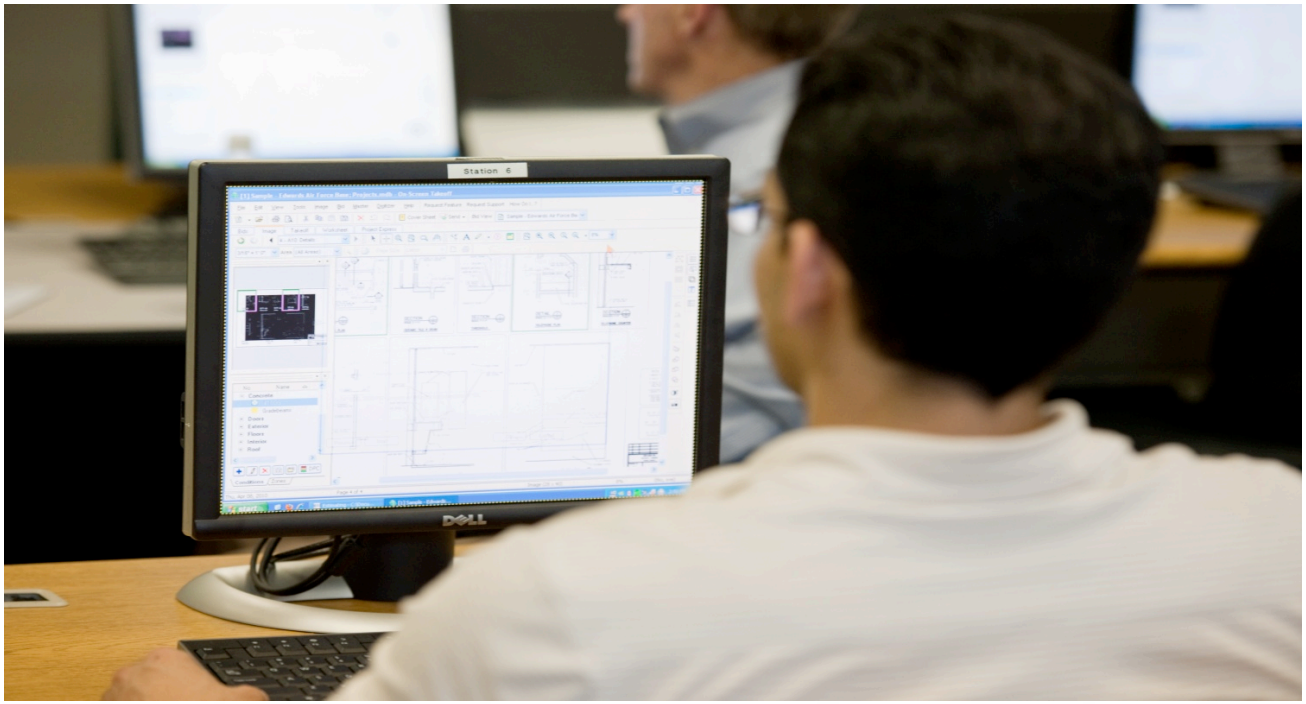
Computer Applications in Construction

Management of Construction: Emerging Technologies

Construction Estimating

Management of Construction: Emerging Technologies

Construction Planning and Scheduling



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