



Transformation Through Education

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ESD Alternative Energy Conference

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Macomb Community College Profile

- Largest grantor of associate's degrees in Michigan
- Consistently ranks in the **top 2%** among more than 1,195 two-year colleges nationwide
- **200** degree and certificate fields
- **24,000** degree-credit students each semester
- **12,000** students each year in workforce development and customized training programs, continuing professional education, and emergency services academies



Agenda

- Energy Sector: Transforming a Nation
- Reinventing an Industry and Beyond
- The Role of Community Colleges
- Macomb College Programs and Partnerships

Energy: Transforming a Nation



Reinventing an Industry

“Rebuilding in Detroit starts with cars, with sheet metal and engines..... In-car technology and more engines than ever powered by electricity instead of gasoline....”

Detroit Free Press, Jan. 2010



GM to Build Electric Car Engines in Baltimore

Tuesday February 2, 2010

If Michigan succeeds in developing alternative fuel, hybrid and electric vehicles, this sector may grow significantly.

Michigan Green Jobs Report, 2009



Electric Cars Spark Interest at 2010 Detroit Auto Show

Posted: Jan. 11, 2010 10:01 a.m.
U.S. New & World Report



“Improving the efficiency of our vehicles is critical to reducing America’s dependence on foreign oil and addressing climate change,” said Secretary Chu.

Clean transportation and fuels is the largest green economy area in Michigan, comprising just over 40% of green jobs and reflecting Michigan’s automotive heritage.

Michigan Green Jobs Report, 2009



Investing Beyond Automotive...

Energy Efficiency

\$500 million dollars for job training, and programs to prepare individuals for careers in energy efficiency and renewable energy.

\$5 billion for weatherization of low income housing.

American Recovery and Reinvestment Act of 2009

Smart Grid/Advanced Battery

\$11 billion towards Smart grid (ARRA)



Energy Management



The revenue for the energy management services market in North America in 2008 was \$20.35 billion (USD) and is projected to double to over \$40 billion (USD) by 2013

Source: Frost & Sullivan

Solar & Wind Energy



General Electric Co. announces plans to build a research, development and manufacturing facility for wind turbines in Metro Detroit - *Detroit Crain's*

Michigan Selected to be Site of New **DOW POWERHOUSE Solar Shingle Facility**

Role of Community Colleges

- Identify relevant technical and professional career pathways in “emerging industries”
 - Understand job trends and economic shifts - *Where are the Jobs???*
 - Work closely with industry leaders and advisory boards
- Offer students and displaced workers educational options
 - Short term - Training and certificate programs
 - Long term - Associate degrees & beyond
 - Focus on transferable skills
- Work proactively with other agencies and create workforce oppty.
 - Link workforce development efforts with economic development
 - NWLB – No Worker Left Behind; DELEG
- Provide student support and career services
 - Counseling, Internships, Job Shadowing, Co-Op’s, Remediation

Macomb College Approach

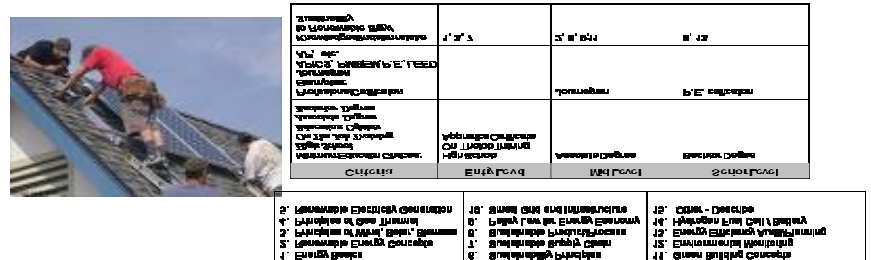
Built Partnerships and Regional Collaboration



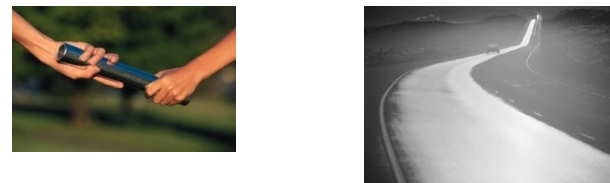
Evolved programs integrating emerging technology into curricula

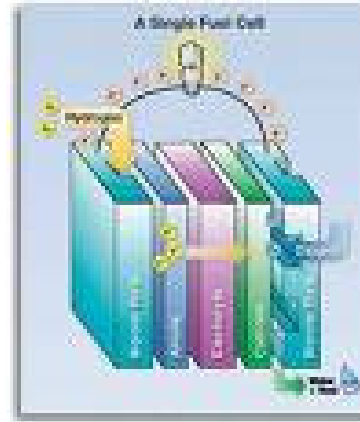


Focused on credit and non-credit career pathways



Assured Support & Counseling for Success





HEV Training
1775 people

2002

2006

2008

MACOMB RENEWABLE ENERGY PROGRAM INITIATIVES

Grant for
Hybrid
Electric
Vehicle
Training
(HEV)

2005



2007





Submit grant application for Center for Advanced Automotive Technology

Advanced Battery CCLI

- Programs



CDP

- Conservation
- Sustainability
- Construction



2009



CDP

- Integrate Academic Programs
- Expand Offerings



Renewable Energy Certificate Created

2010 & BEYOND



Advanced Battery / Multi-Skill Tech Training



CDP

- Equipment

Electric Drive Vehicle

- Programs
- Equipment



Macomb Educational Offerings

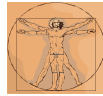
- Renewable Energy Credit & Non-Credit Offerings
 - Hybrid Automotive Technician
 - Fuel Cell Courseware
 - Transportation and Stationary
 - Sustainable Construction
 - Includes weatherization, energy efficiency, energy management
 - HVAC/Geothermal
 - Advanced Manufacturing/
Mechatronics
 - Engineering Technology with
4-year pathways
- **COMING....**
 - Advanced Battery and Electric Transportation and Storage
 - Overview, Vehicle Operation, Component Physics & OBD
 - Plug In & Charging Technology
 - Smart Grid & Infrastructure
 - Charging Stations, Line Design User to Utility Interfaces



Example: Education Pathway Options



Automated Systems
Technology
Mechatronics



General Education
Requirements
(18 cr.)



Renewable Energy
Certificate
(15 cr.)



Degree Pathway: Associate of Applied Science with Renewable Energy Certificate

Certificate Pathway

Work
Experience/
On The Job
Training



Renewable Energy
Certificate
(15 cr.)

Workforce Development Pathway

Transitional
Skills/Work
Experience



Non-Credit
Workforce Training

**ALL PATHWAYS LEAD PROVIDE
EMPLOYABLE SKILLS, COMPETENCIES
FOR THE JOB MARKET**

Moving Forward...

- Be Engaged & Listen
 - Regional Initiatives
 - Industry Advisory Boards
- Be Flexible & Innovative
 - Embrace new technologies & paradigms
 - Be able to respond quickly to industry opportunities - non credit offerings
- Be open to new growth models
 - Sustainability/Conservation/Renewables
 - New Business Models & Companies
- Strategy Sessions/Workforce Agencies
 - Worker Training Opportunities