National Symposium of 21st Century Community Colleges
Strengthening Workforce Development in India for the Global Economy

A case study of Montgomery College
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Building a workforce by building bridges

- State/local government
- Research institutes
- Industry
- Economic development
- Government agencies
- Industry organizations
- Education

21st Century Community Colleges
Partnerships

- Education
- Industry
- Government
- Economic development
- Industry organizations
Industry partners

• Define skill set needed
• Develop internship opportunities
• Ask for program support
  – Equipment
  – Reagents
  – Consumables
  – People
  – Scholarships
Education Feeder System: 2 + 2 + 2

High School (2 years) → Montgomery (Community) College (+2 years) → University Degree (+2 years) → University Masters Degree → HGS Industry Job

While working, students continue their education (and their company pays for it!)
Why is the Program in Biotechnology a “case study”?

- Open admissions policy
- Diverse students
  - High School students and graduates
  - 4-year degree holders
  - Masters degree holders
  - Career changers
Mission of the Program in Biotechnology

- **Two purposes**
  - Train for the workforce
  - Prepare for transfer to a university

- **Three options**
  - AAS degree in Biotechnology
  - Certificate in Biotechnology
  - Certificate in Biomanufacturing
Curriculum

• Developed with input from industry
• Includes theoretical knowledge, of course
• Also includes skills specific to our partner’s needs
• Entry-level bench skills
  – Lab math
  – Solution making
  – Liquid handling/transfer
  – Aseptic technique
• “Soft skills”
  – Teamwork
  – Communication
  – Ethics
  – Professional behavior
Hands-on training is our specialty

- Explanation
- Demonstration
- Allow students to practice skill
- Repetition – do it several times
We assume no previous knowledge

- We explain virtually everything about performing a method or procedure
- We demonstrate everything
- Students then DO everything
Ability to work independently

- Follow a protocol or SOP (Standard Operating Procedure) from start to finish
- Organize time efficiently
- Prepare reagents properly
- Organize work space
- Document their work
- Present their work
Ability to work as a part of a team

Students seats are switched
Reagents are sometimes shared
Rewards/penalties given to groups
  – One glove in the non-lab trash results in a point deduction for the whole class
We observe group dynamics
  – Does one person “hold back” and let others do the work?
  – Does one person “dominate” and take over?
A “win-win” situation

- Employers need employees
- Students need education
- Students need jobs
- Colleges need students
The personal touch

• We assess each student’s skills
• We give honest assessments
• We “make introductions” (NOT job-placement)
• NO ONE is guaranteed a job
Dhanyavad!

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