FRONT RANGE
COMMUNITY COLLEGE

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Memo

From: Colorado Online Energy Training Consortium 4/29/2013

To: Brie Burleson

RE: Program changes at FRCC

Front Range Community College (FRCC), a member of the Colorado Online Energy Training Consortium (COETC) would like to add Machining to their program offering for our project. The budget will not change and the school will continue to offer Clean Energy certifications. However, to meet target numbers of students, FRCC recognizes the need to add additional content. By including knowledge and skills that will provide an additional certification in Machining, students will be even more prepared to enter the energy industry.

While machining doesn't immediately sound like an energy-related program, the skill set gained in the certificates is very relevant to the energy sector. Machining incorporates the common knowledge and skill areas needed for entry into careers with traditional and renewable energy manufacturers. Major employers of skilled machinists used for TAACCCT job placements are often companies that serve the energy industry. An example is Woodward, a company that produces combustion control, motion control and electronic control technologies that are sold to manufacturers of alternative fuel vehicles, industrial turbines and wind power systems. In addition, many of the local machining job shops serve Vestas, a major supplier of wind turbines.

In addition, the certificates' curriculum touch upon many of the topics covered in our Clean Energy Technology classes:

Introduction to Machining-81 hours	**Similar to CET course:**
1. Safety (general & machine tool-PPE, Haz comm) (4)	ENT 105 Safety for Manufacturing Environment
2. Work Ethic, Employability, & Conflict Resolution Skills (4)	MTE 110 Manufacturing Communication & Teamwork
3. Ethics (3)	PHI 112 Ethics
4. Introduction to Machine Tools (4)	ENT 138 Machine Tools
5. Hand Measurement (scales, non-digital calipers, OD micrometers) (8)	ENT 110 Metrology
6. Intro to Lean Manufacturing (2)	MTE 244 Lean Manufacturing
7. Bench Tools (deburring, saw, files, vices, wrenches) (6)	N/A
8. Shop Math (fractions, decimals, number line) (6)	MAT 108 Technical Math
9. Blueprint reading & Basic GD&T (basic datum structure, basic Position, call-outs) (10)	ENT 106 Print Reading for Manufacturing
10. Introduction to Cutting Tools (drill, reamer, tap, end mill, face mill) (10)	N/A
11. Manual Mill & Lathe (24)	N/A

Intermediate Machining (Operator Training)- 89 hours	**Similar to CET course:**
1. Ethics (3)	PHI 112 Ethics
2. Communication & Teamwork (6)	MTE 110 Manufacturing Communication & Teamwork
3. Shop Math (trigonometry, graphing) (6)	MAT 108 Technical Math
4. Cutting Tools (abrasives, EDM- wire & sinking, boring) (4)	N/A
5. Measurement (height Gauges, vernier calipers, indicators, Introduction to CMM)/Intermediate Blueprint and GD&T, Intro to ISO and Quality Measurement Systems) (18)	ENT 110 Metrology
6. Intermediate Manual Mill/Lathe (18)	N/A
7. CNC Mill/Lathe (setup, programming, offsets) (30)	N/A
8. Introduction to CAD/CAM (4)	N/A

Below are our numbers of enrollments/completers for our non-credit certificates in Smart Grid Technology and Manufacturing Technology. 16 people are currently enrolled for the first offering of the Precision Machining certificate.

Smart Grid Technology; November 2011-June 2012

- 16 enrollments
- 8 completers

Smart Grid Technology; September 2012-January 2013

- 11 enrollments
- 9 completers

Manufacturing Technology; Fall 2011

- 12 enrollments
- 9 completed

Manufacturing Technology; Spring 2012

- 16 enrollments
- 16 completed