**Open Educational Resource**

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| Title: | ***Fundamental Skills for Manufacturing & Engineering (FSME)* Certificate Program** |
| Type: | **Syllabus** |
| Description: | The one-quarter, four-course *Fundamental Skills for Manufacturing and Engineering (FSME)* Certificate is designed to provide students with a foundational set of skills and background knowledge that equips them for entry-level positions in manufacturing or to continue technical studies in a field such as Mechatronics Technician.  Students learn about occupational safety and health in an applied engineering workshop. They also learn how to interpret manufacturing drawings and schematics; how to take measurements and analyze data; the properties of common materials used in manufacturing; and the quality principles and terminology employed in modern industry.  Basic workshop skills needed to fabricate parts and structures are also covered, and students are introduced to more advanced manufacturing and engineering fabrication techniques including welding, the use of machine tools, composites, and electrical wiring. |
| Inventory of Materials  in ZIP File: | **Course Outlines for:**   * **FSME 101 – Workshop Safety** * **FSME 111 – Quality Principles, Inspection and Test** * **FSME 112 – Fabrication Fundamentals I** * **FSME 113 – Fabrication Fundamentals II** |
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| A Derivative from the Original Work by: | FSME is designed to align with year one of the [Core Plus](http://core-plus.org/) curriculum. [Core Plus](http://moodle2.ospi.k12.wa.us/enrol/index.php?id=133) was developed for use in high schools by the [Manufacturing Industrial Council](http://micouncil.org/) in partnership with the Washington State [Office of Superintendent of Public Instruction](http://www.k12.wa.us/). Funding provided by [The Boeing Company](http://www.boeing.com/). |
| This workforce solution was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites, and including, but not limited to accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability or ownership. | |

**About this Project**

The modern industrial workplace is a choreography of humans and machines working together to create, sustain and maximize value. Mechatronics Technicians stand at the interface between the humans and the machines driving today’s fastest moving companies: They operate, monitor and maintain complex equipment when things are going right; and they help troubleshoot, manage repairs, and restore production when things go wrong.

Mechatronics is an interdisciplinary field combining elements of mechanical and electrical engineering, computer science, telecommunications, and systems and process design. Mechatronics Technicians are in high demand in any industry sector that relies on automation and robotics, including advanced manufacturing, aerospace and transportation systems, instrumentation and process control, and supply chain and logistics.

In 2014, Clover Park Technical College in Lakewood, Washington, received a four-year, $2.5-million grant award from the U.S. Department of Labor (DOL) under Round 4 of the Trade Adjustment Assistance Community College and Career Training (TAACCCT) program for the [Connecting Competencies to Employers (C2E)](http://www.cptc.edu/programs/mechatronics) project. The goals of C2E are to prepare workers for well-paying jobs as Mechatronics Technicians and to meet workforce needs of regional industry.