

COMPOSITE FABRICATION ARTICULATION

Pierce County Careers Connection
Dual Credit Articulation Agreement

Upon completion of a full year of high school or equivalent to the following competencies:

- Understand the benefits and limitations of composite materials.
 - Be familiar with the common manufacturing processes for composite.
 - Identify and utilize the materials to construct a composite laminate.
 - Identify and utilize all ancillary materials needed to construct a composite laminate.
 - Understand basic tooling techniques as in molds and trim fixtures.
 - Understand and demonstrate proper material handling protocols.
 - Understand and demonstrate safe use of materials and chemicals.

- Learning Demonstration Projects.
 - Vacuum Bagging
 - Apply a vacuum bag to a wood block, demonstrating proper tool preparation, use of bagging materials, proper coverage, vacuum fitting placement and acceptable leakage rate.
 - Apply a vacuum bag to a hollow cylindrical object to achieve above outcomes on a more complex and challenging shape.
 - Sample
 - Construct a flat sample Pre-Preg laminate according to fabrication drawing to demonstrate proper ply orientation, tooling & ancillary material use, cure process, dimensional trimming & measurement of finished material thickness.
 - Bowl
 - Construct a laminated bowl from Pre-Preg demonstrating proper application of mold release compound, control of drape & tack aspects of material, use of heat gun, elimination of wrinkles, cure & de-molding procedures.
 - Base Plate
 - Construct a flat Pre-Preg laminate according to fabrication drawing to demonstrate proper ply orientation, tooling & ancillary material use, cure process, dimensional trimming & application of peel ply in preparation for secondary bonding.

- I-Beam
 - Construct a multi-part co-cured laminate I-Beam according to fabrication drawing to demonstrate proper layup, assembly, radius filler calculation & fabrication, prep & usage of layup mandrels, application of peel ply for secondary bonding, complex bagging, cure, de-molding & trimming.

- Wet Layup
 - Construct an airfoil sectioned part using wet laid fiberglass on a foam core.
 - Demonstrate advanced core shaping, use of integral Hat Section reinforcement, bleeder layers to control resin content and modify vacuum pressure to preserve core integrity.

A student earning a “B” grade or better may earn college credit at the following college:

<u>College</u>	<u>Course</u>	<u>Credits</u>
Clover Park Technical College	ACM 120 CIP Code: 15.0696	4