Advanced Manufacturing

Year One (Sample schedule)

Quarter One (Fall)
- AMATH 121 Applied Mathematics .............................................. 5
- FA 100 Industrial First Aid .......................................................... 1
- COMP 215 Advanced Composites Tech I ................................. 11

Quarter Two (Winter)
- ENGL& 101 English Composition I ........................................... 5
- ADMFG 111 Introduction to Computer Aided Design ................. 5
- COMP 216 Advanced Composites Technology II ......................... 11

Quarter Three (Spring)
- CAT 118 Excel Basics ............................................................... 1
- ADMFG 140 Introduction to CNC ............................................... 3
- ADMFG 141 CNC Programming ................................................ 3
- COMP 217 Advanced Composites Technology III .................... 11

Year Two (Sample schedule)

Quarter Four (Summer)
- HUMDV 120 Human Relations ................................................... 3
- ADMFG 142 Advanced CNC Programming ............................... 3
- ADMFG 143 Advanced Materials Machining ............................. 3
- COMP 220 Composites Recycling .............................................. 5

Quarter Five (Fall)
- ADMFG 121 CNC Operations .................................................... 5
- WELD 110 Beginning Welding .................................................. 15

Total Credits Required  90

Specifics

Length of Program
Courses with prerequisites, and the placement level of the student, may extend the Length of Program listed on this page.

Which Quarter Can I begin?
The typical student schedule is based on entering the program during the fall quarter, however some programs allow students to enter in the winter or spring as well. Since not all do, please confirm with an advisor whether this program must be started during a specific quarter or not.

Details
Completion Award: AAS Degree
Length of Program: 5 Quarters
Program Code: 827N

Program Coordinator (contact with questions)
James Russell (360) 417-6348
Office: CRTA
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Apply online: http://pencol.edu/GetStarted

Effective Academic Year: 2019-2020 | Effective: Fall 2019
Advanced Manufacturing

Program Description
The Advanced Manufacturing Technology program is designed to prepare students for a variety of manufacturing jobs including composites technician, Computer Numerically Controlled (CNC) operator and programmer, and carbon fiber recycling technician. Core curriculum includes non-destructive testing, metrology, computer aided design, CNC, composites recycling, machining and welding. Students are prepared for these fields by learning the physical properties of advanced materials and becoming proficient in composite processing skills that include vacuum bagging, resin infusion, composite oven curing, material use data entry, material resource procurement, CNC programming/operating, and clean room techniques.

Special Features
• The Advanced Manufacturing Technology program classroom and lab are co-located with the Composites Recycling Technology Center.

Student Learning Outcomes
When this program is completed, the student will be able to:
• Operate tools and equipment safely
• Handle, store, and use advanced composite materials safely
• Describe physical properties of various composite materials and metals
• Use 2D and 3D drawings/models to build/modify parts and assemblies
• Produce composite structures in both production and prototype environments
• Demonstrate ability to critically assess damage and successfully repair composite structures
• Machine composites, cores, metals, and advanced materials using CNC technology
• Non-destructively test composite and metal parts
• Accurately measure and document parts and assemblies using 3D modeling and CMM
• Produce 3D part models, analyze them, generate tool paths, and cut them on CNC machines
• Apply basic computational skills to practical applications
• Communicate in writing for a variety of purposes and audiences
• Demonstrate competencies to succeed in the selected career pathway workplace

Career Opportunities
Occupational fields include advanced manufacturing assemblers and fabricators in marine construction and repair, aerospace manufacturing, sport equipment and custom part fabrication.

For current employment and wage estimates, please visit and search for the relevant occupational term: www.bls.gov/oes

Assessment
Students are required to place into the English and math/applied math courses required for this program. Learn more about placement options by visiting the Assessment and Placement website: http://www.pencol.edu/placement-testing

Approximate Additional Costs
Books, supplies and miscellaneous fees (per quarter) ............................................................... $150.00
Tools/Equipment – (most purchased first year) ................................................................. $400.00