



Advanced Composites Manufacturing

Certificate Program



About

Advanced manufacturing is part of the state's largest industry sector, making up 19% of New Hampshire's economy. The economic impact of jobs in advanced manufacturing far exceeds that of jobs in other industries. The Advanced Composites Manufacturing program at Great Bay prepares participants with skills and knowledge required for jobs in the high growth fields of composites manufacturing and aerospace. The program is offered at the College's Advanced Technology & Academic Center in Rochester, NH. Introductory courses provide opportunities for students to experience working in a modern, clean, hands-on training lab while learning and applying skills critical for success. In addition to a mechanical aptitude, students interested in the program should have keen attention to detail and demonstrate a desire for quality. They must also enjoy learning in a hands-on way and working as part of a team. The program consists of two levels and can be completed in 6 months. The introductory level is designed to provide students with an overview of advanced composites manufacturing and to help them select an area of specialization based on interest, ability, and job outlook. During Level 2 training, students will complete general fundamental manufacturing courses and concentrated courses of study leading to machine operator certificates with one of 6 specializations:

1. Paint Operator
2. Weaving Technician and Preform Finishing Technician
3. Resin Transfer Molding Technician
4. Bonding and Finishing Operator
5. Quality Inspection and Coordinate Measuring Machine (CMM) Technician
6. Composites CNC Milling and Set-Up Operator

Many students will enter the workforce after completing level 2. They may continue to learn as they earn by studying in either technical or leadership tracks. A leadership path could provide opportunities to be become a team leader within their specialization. A technical path could lead to increased skill level and potential certification by the Society of Manufacturing Engineers as a Certified Manufacturing Technologist.

Dual enrollment: Students enrolled in the ACM Certificate program may elect to enroll in the Associate Degree in Technical Studies. Dual enrollment is contingent upon active or graduate status of the certificate. Completion of the ACM certificate satisfies the requirement for the technical specialty core (24 credits) of the Technical Studies degree.

Students will be able to:

The goal of the Advanced Composites Manufacturing program is to prepare the student to work in the advanced composites manufacturing industry, including aerospace, automotive, wind energy, and others. Students completing the program may continue to earn an Associate Degree in Technical Studies. After successful completion of the program, students will be able to:

- Define the processes and materials used in advanced composites manufacturing.
- Illustrate the flow of materials and resources within the manufacturing process for advanced composite materials.
- Apply terminology used in aerospace, explain regulatory compliance, and describe quality concepts.
- Demonstrate the ability to solve mathematical problems that affect composite part design and manufacture.
- Understand the fundamental science concepts behind composites manufacturing.
- Apply techniques for observing, gathering, and recording data.
- Anticipate or recognize the existence of a problem or nonconformity.
- Demonstrate ability to recognize safety issues and to observe all safety procedures.
- Demonstrate the ability to successfully meet the requirements of a machine operator position in advanced composites manufacturing.
- Demonstrate the ability to follow written instructions with particular attention to detail and quality.

Occupations/ Outlook Trends

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How Much Can I Expect to Earn?

To learn more about potential earnings visit:

Bureau of Labor Statistics
Occupational Outlook
Handbook
www.bls.gov/oco

Why Advanced Manufacturing at Great Bay?

- This program is highly hands on in a state of the art lab, and was designed to help students develop the skills and knowledge needed for careers in advanced manufacturing.
- Students learn what options exist in the field of advanced manufacturing and customize their program by selecting an area of specialization. This program is aligned with technician positions with various employers
- After completion, students are prepared for entry or mid-level jobs. They may use this certificate as a stackable credential and continue to learn while they earn.



Great Bay
Community College

320 Corporate Drive. Portsmouth, NH 03801
603.427.7600



Student Name: _____

Student ID #: _____

Beginning Semester: _____



YOUR PATHWAY TO A CERTIFICATE

This **ACADEMIC MAP** keeps you on track to graduate

CERTIFICATE CORE COURSES

Course #	Course Name	Prerequisites (p)/ Corequisites (c)	Credits	Semester	Grade Earned	Transfer
ACM110G	Introduction to Advanced Composites	Acceptance into the Advanced Composites Manufacturing Certificate program (p) ACM115G (c)	3			
ACM115G	Applied Math & Measurement for Manufacturing	Acceptance into the ACM Certificate program (p) ACM110G (c)	2			
ACM120G	Technical Blueprint Reading	Placement into CIS110G or CIS107G or higher (p)	2			
ACM210G	Fundamentals of Composites Manufacturing	C or better in ACM110G and ACM115G and ACM120G (p) One of the Manufacturing Operator Skills Courses (c)	4			
ACM230G	Manufacturing Ethics		1			
BUS210G	Organizational Communication		3			
CIS110G or CIS 107G	Introduction to Computers or Essentials of Computer Literacy	Placement testing (p)	3-4			
Total			18-19			

CERTIFICATE CONCENTRATION COURSES

Students must select one elective below for Concentration:

Course #	Course Name	Prerequisites (p)/ Corequisites (c)	Credits	Semester	Grade Earned	Transfer
ACM250G	Paint Operator	ACM210G (c)	1			
ACM251G	Weaving Technician and Preform Finishing		2			
ACM252G	Resin Transfer Molding Technician	ACM210G (c)	2			
ACM253G	Bonding and Finishing Operator	ACM210G (c)	2			
ACM254G	Quality Inspection and CMM Operator	Placement into CIS110G or CIS107G and C or better in ACM120G (p)	3			
ACM255G	Composites CNC Milling and Set-up Operator	C or better in ACM210G or MANF112G (p) or (c)	6			
Total			16			

Total Credits 34-35

ACM Technical Electives:

Course #	Course Name	Prerequisites (p)/ Corequisites (c)	Credits	Semester	Grade Earned	Transfer
ACM256G	Composites Repair Technician	ACM253G and ACM257G (p)	2			
ACM257G	High Performance Composites Fabrication	ACM253G (p) or (c)	2			
ACM265G	Multi Axis CNC Milling	ACM255G (p)	4			
ACM103G	Project Based Composites Based Manufacturing		3			
ACM215G	Applied Composites: Science and Technology	MATH145G/147G or MATH150G/152G or higher and PHYS135G or higher and CHEM110G or higher (p)	4			

SUCCESS STRATEGIES

- Take English and Math in your first semester.
- Explore Transfer opportunities.
- Consider Summer courses to catch up or get ahead.
- Check your student email daily.
- Meet with your Academic Advisor every semester.
- Take advantage of Tutoring Services.
- Maintain an overall GPA of 2.0 to graduate.