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**BTEC MISSION:**  
Building career pathways and post-secondary options by providing relevant and current technical education programs.



# PROGRAM AND INFORMATION GUIDE 2017-2018



9451 N. Washington St. • Thornton, CO 80229-3533  
Office Phone: 720-972-5820 • Fax: 720-972-5869  
[bollmantech.adams12.org](http://bollmantech.adams12.org)

# CAREER & TECHNICAL EDUCATION COURSES

## Aerospace Engineering

11, 12  
Credits: 1.0  
Meets: 1 period each day  
STEM Pathway, PLTW®

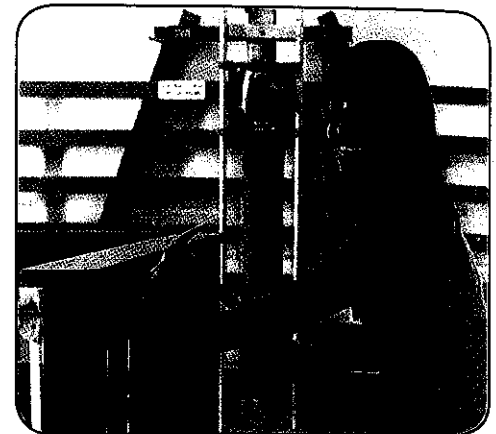
- Flight Simulation
- Evolution & Physics of Flight
- Flight Planning & Navigation
- Materials & Structures
- Propulsion
- Flight Physiology
- Space Travel
- Orbital Mechanics
- Remote Systems

## Automotive Technology II

11, 12  
Credits: 2.0  
Meets: 2 periods each day  
Transportation, Distribution & Logistics Pathway



- NATEF Certified Program
- Advanced Transmission & Engine Rebuilding
- Advanced Computer Diagnostics & Engine Performance
- Advanced Suspension Repairs
- Air-Conditioning



## Computer Integrated Manufacturing Robotics & Automation

11, 12  
Credits: 1.0  
Meets: 1 period each day  
STEM Pathway

- Program Robots & Robotic Arms
- Programmable Micro-Computers
- Solid Works Engineering Modeling Software
- Automated Machining (CNC Mill)
- Learn to speak the language of machines

## A.P. Computer Science A

10, 11, 12  
Credits: 1.0  
Meets: 1 period each day  
Computer Science Pathway

- Design, implement, & analyze solutions to problems
- Use & implement commonly used algorithms
- Write solutions fluently in an object-oriented paradigm
- Write, run, test, & debug solutions in Java
- Read & understand programs



## Automotive Technology I

10, 11, 12  
Credits: 2.0  
Meets: 2 periods each day  
Transportation, Distribution & Logistics Pathway

- NATEF Certified Program
- Minor Computer Repair
- Cooling & Lubricant Systems
- Electrical & Fuel Systems
- Chassis/Front Suspension
- Brakes/Tires Repair & Balancing

## Carpentry I

10, 11, 12  
Credits: 2.0  
Meets: 2 periods each day  
Architecture & Construction Pathway

- Flooring
- Framing
- Shop Machinery
- Blueprint Reading & Sketching
- Materials & Fasteners
- Windows & Doors

## Data Structures & Algorithms

11, 12  
Credits: 1.0  
Meets: 1 period each day  
Computer Science Pathway

- Design, implement, & analyze solutions to problems
- Write, run, test & debug solutions in Java
- Expand your Java knowledge in:
  - Streams & Files
  - Analysis of Algorithms
  - Lists & Iterators
  - Stacks & Queues
  - Recursion
  - Binary Trees
  - Lookup Tables & Hashing
  - Heaps & Priority Queues
  - Design Patterns

## Diesel Automotive Technology I

10, 11, 12

Credits: 2.0

Meets: 2 periods each day  
Transportation, Distribution, &  
Logistics Pathway

- Brakes
- Engine theory & rebuild
- Electrical & electronic theory & troubleshooting
- Powertrain theory
- Preventive Maintenance
- Hydraulic theory
- Operation & component rebuild
- Design & troubleshooting
- ASE, & NATEF Standards



## Engineering Design & Development

11, 12

Credits: 1.0

Meets: 1 period each day  
STEM Pathway PLTW®

- Advanced application of the engineering design process
- Research, define, & validate a technical problem
- Design, build, & test solutions to the technical problem
- Work closely with industry professionals who provide mentoring opportunities

## Diesel Automotive Technology II

11, 12

Credits: 2.0

Meets: 2 periods each day  
Transportation, Distribution, &  
Logistics Pathway

- Advanced Transmission & Engine Rebuilding
- Advanced Computer Diagnostic & Engine Performance - Gas & Diesel Engines
- Advanced Driveline Repair
- DOT Inspection Procedures
- Air-Conditioning
- Advanced Electrical Diagnostic & Repair
- Advanced Suspension & Repair

## Introduction to Computer Science

10, 11, 12

Credits: 1.0

Meets: 1 period each day  
Computer Science Pathway

- Fundamentals of Programming (Java Based)
- Gaming Applications
- Drawing & Animation
- Variables & Scope
- Loops & Conditionals
- Functions
- Classes & Objects
- Arrays

## Introduction to Engineering

10, 11, 12

T.H.S. 9, 10, 11, 12

Credits: 1.0

Meets: 1 period each day  
STEM Pathway, PLTW®

- 3D Modeling
- Technical Sketching & Drawing
- Engineering Design Process
- Research & Analysis
- Design Challenges
- Explore Careers in Engineering
- Team Projects



## Graphic Design I

10, 11, 12

Credits: 2.0

Meets: 2 periods each day  
Arts, A/V Technology  
& Communication Pathway

- Layout, Color Theory
- Typography
- Theory/History of Design
- Elements & Fundamentals of Art & Design
- Print Production, Creative Process, & Portfolio Development

## Graphic Design II

11, 12

Credits: 2.0

Meets: 2 periods each day  
Arts, A/V Technology &  
Communication Pathway

- Advanced Graphic Design Skills/Technology
- Techniques, Fundamentals, & Elements
- Client Projects, Team Building
- Portfolio & Website Development
- Print Production
- Business Writing & Presentation
- Job Shadowing Opportunities



## Home Improvement & Repair

11, 12

Credits: 2.0

Meets: 2 periods each day  
Architecture & Construction Pathway

- Drywall & Insulation
- Siding & Roofing
- Basic Wiring & Plumbing
- Interior Trim & Flooring
- Home Design
- Concrete
- OSHA 10



## Medical Sciences II - EMT

12

Credits: 2.0 (Incl. 1.0 Science Credit)  
Meets: 2 periods each day  
STEM Pathway

- Medical & Trauma Assessment
- Medical Terminology
- Body Systems & Related Care
- Patient Care
- Infection Control
- Safety & Emergency Procedures
- Critical Thinking & Problem Solving
- Legal & Ethical Issues
- Leadership Skills & HOSA

## Medical Sciences II - CNA

12

Credits: 2.5 (Incl. 1.0 Science & 1.0 Elective Credit, & 0.5 Health, or PE or Fine Arts/ Elective Credit)

Meets: 2 periods each day 1st Sem.  
3 periods each day 2nd Sem.  
STEM Pathway

- Medical Terminology
- Body Systems & Related Care
- Patient Care & Rehabilitation
- Basic Nursing Skills/Infection Control
- Safety & Emergency Procedures/ First Aid/CPR
- Nutrition, Fitness, & Wellness
- Critical Thinking & Problem Solving
- Legal & Ethical Issues
- Leadership Skills & HOSA



## Principles of Engineering

10, 11, 12

Credits: 1.0

Meets: 1 period each day  
STEM Pathway, PLTW®

- Robotics
- Ballistics
- Bridge Design
- Engineering Design Process
- Simple Machines
- Electrical Systems
- Thermodynamics
- Fluid Power

## ProStart

11, 12

Credits: 2.0

Meets: 2 periods each day  
Hospitality, Human Services, & Education & Business & Public Administration Pathway

- Nationally Recognized Program
- National Restaurant Association Certification Available
- Food Service & Hospitality Management
- Culinary Arts
- Business Management
- Customer Service Skills



## Medical Sciences I

11, 12

Credits: 2.0 (Incl. 1.0 Science Credit)  
Meets: 2 periods each day  
STEM Pathway

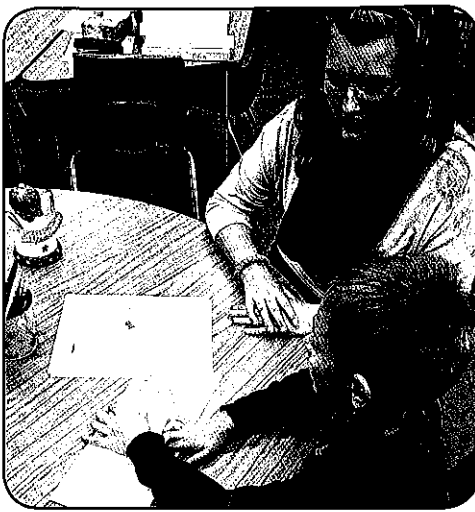
- Health Care Career Exploration
- HOSA & Leadership Skills
- Problem Solving & Teamwork
- Portfolio & Job Skills
- CP Anatomy & Physiology
- Medical Terminology
- Infection Control
- Cultural Diversity
- Current Issues in Health Care
- Medical Math
- 30 Hours Community Service in a Health Care Setting

## Teacher Cadet I

11, 12

Credits: 2.0 (Incl. 1.0 English Credit)  
Meets: 2 periods each day  
Hospitality, Human Services, & Education Pathway

- Nationally Recognized Program
- Teaching Methods, Styles, Strategies, & Ethics
- Classroom Culture, Discipline, & Responsibilities
- History of Education, Curriculum Trends, & School Reform
- Governance & Management
- Diversity & Multiculturalism
- 10 Week field experience in a classroom



## Teacher Cadet II

### TEACHING INTERNSHIP

12

Credits: 2.0 (Incl. 1.0 English Credit)

Meets: 2 periods each day  
Hospitality, Human Services,  
& Education Pathway

- Students intern a minimum of 80 hours per semester in a classroom with a mentor teacher. Students complete a portfolio documenting their experience.

## Video Production I

10, 11, 12

Credits: 2.0

Meets: 2 periods each day  
Arts, A/V Technology &  
Communication Pathway

- Key concepts, principles, & techniques of audio, video, & film production
- Use of equipment, tools, & techniques associated with video production
- Demonstrate & apply the planning process effectively
- Project implementation for television, video, & film
- Apply finalization techniques for video
- Investigate career opportunities
- Cultivate necessary workplace skills

## Video Production II

11, 12

Credits: 2.0

Meets: 2 periods each day  
Arts, A/V Technology &  
Communication Pathway

- Advanced techniques in videography & cinematography
- Video editing skills will be expected to be near expert/ career ready level
- Projects assigned will be in line with industry expectations & topics
- Pursue industry internship & job opportunities
- Budget, write, produce, & edit complete projects in the commercial, film, corporate, & documentary genres



## Welding Technology I

10, 11, 12

Credits: 2.0

Meets: 2 periods each day  
Manufacturing Pathway

- Shop Safety
- Plasma Arc Cutting
- Oxyfuel Cutting & Welding
- Brazing & Soldering
- Stick Welding (SMAW)
- MIG Welding (GMAW)
- Flux-Cored Arc Welding (FCAW)
- Print reading
- Fabrication
- Shop Machine Operation (Drill Press, Ironworker, Band Saw, Grinder, Plasma-Cam, etc.)
- Integration of Academic Skills

## Welding Technology II



11, 12

Credits: 2.0

Meets: 2 periods each day  
Manufacturing Pathway

- Entry Level Welder Certification Available through the American Welding Society SENSE Program
- Advanced Instruction in: Shop Safety, MIG (GMAW), Stick (SMAW), TIG (GTAW), & Flux-Cored Arc Welding (FCAW)
- Specific Topics Include:  
Aluminum & Stainless Steel  
Mild Steel  
Fabrication

## Academic Courses

Academic courses are open to students enrolled in CTE programs at BTEC.

### English:

English 11 - American Lit./Comp.  
English 12 - Lit./Comp.





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DENVER CO  
PERMIT # 94

*Adams 12 Five Star Schools*  
Bollman Technical Education Center  
9451 N. Washington Street  
Thornton, CO 80229-3533  
(720) 972-5820



**Who can attend?**

Any current 9th, 10th, or 11th grade student in an Adams 12 high school, charter school, or alternative high school may apply to attend BTEC programs in their 10th, 11th, or 12th grade year. Some courses are open to Thornton High School 9th grade students.

**How do I get to BTEC each day?**

Free district transportation is provided to and from BTEC for Horizon, Legacy, Northglenn, Mountain Range, and Vantage Point High School students for most class periods.

**How much does it cost?**

BTEC is a program of the Adams 12 Five Star School District. There are no tuition costs; however, some classes require a small fee and/or specialized materials.

**What can Career and Technical Courses do for me?**

Students "learn by doing" in BTEC programs. Courses combine rigorous academics with technical skills in hands-on learning environments. All BTEC Career and Technical Education (CTE) programs partner with business, industry, and post-secondary institutions. These programs prepare students for the 21st century workforce and/or continuing education at 2-or 4-year colleges in specific career pathways.

**Do BTEC classes satisfy graduation requirements?**

YES! All CTE courses fulfill the district Fine/Practical Arts and/or Elective graduation requirements. BTEC academic credits meet district English and Science graduation requirements.

**College Credits are Available!**

Articulation Agreements with community colleges, 4-year colleges, and private post-secondary institutions allow students the opportunity to earn college credits in every BTEC Career and Technical Education program. For more information about college credits, contact a BTEC Counselor.

**How Do I Register?**

Students register for BTEC classes during their home high school registration process. Questions? Contact the BTEC Registrar at 720-972-5827 or a BTEC Counselor at 720-972-5834 or 720-972-3824.

BTEC is an equal opportunity institution and does not discriminate on the basis of race, color, national origin, gender, or disability in admission or access to its programs. For questions, contact the BTEC Assistant Principal at 720-972-5824.