

What type of work is involved in the *Technical* cluster?

- Responsibility for engineering and structural design in the manufacture, construction, and transportation of products or utilities.
- Working with one's hands in a skilled trade concerned with construction, manufacture, installation or repair of products.
- Applying problem solving abilities to design and execute solutions for today's technical challenges.
- The creation of systems that perform a useful task.

What are *Technical Pathways*?

- Vehicle Operation and Repair
- Construction/Maintenance
- Agriculture & Natural Resources
- Crafts and Related Services
- Home/Business Equipment Repair
- Industrial Equipment Operation and Repair

What should you think about when considering a career in the *Technical* cluster?

Do You

- ❖ have an understanding of cause and effect?
- ❖ have problem solving and math skills?
- ❖ enjoy working with tools and equipment?
- ❖ perform work tasks to meet standards of accuracy?
- ❖ have mechanical ability?
- ❖ have manual dexterity and hand-eye coordination?
- ❖ have the ability to form mental images of objects or structures from drawings?

If you answered YES to more of these questions, a career in the *Technical* cluster may be for you!

For more details, read on...

COMPLETERS

COMPLETER: *Auto Service Technology*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Auto Service Technology I (3)	Auto Service Technology II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg. II/DA (.5-1), Science Elective (.5-1), Agricultural Mechanical Technology (1), Chemistry I or Honors Chemistry I (1), Business Communication & Keyboarding (1), Public Speaking (.5), Trigonometry & Pre-Calculus or Honors Trigonometry & Pre-Calculus (1), Technological Issues & Impacts (1), Internship (.5-1)			
8 credits possible per year				
Value Added:	Up to 15 Articulated Credits	Up to 15 Articulated Credits	Up to 12 Articulated Credits	Up to 4 Articulated credits
From:	Community College of Baltimore County, Catonsville	Penn College of Technology	University of Northwestern Ohio	Universal Technical Institute
Program:	Automotive Technology	Automotive Technology	Automotive Technology	Automotive Technology
End of Program Test:	NA3SA Exams in Brakes, Electrical/Electronic Systems, Engine Performance, and Suspension/Steering			
Industry:	National Automotive Student Skills Standards Assessment (NA3SA)			
Taken:	At the completion of each section during Auto Service Technology I & II			

COMPLETER: *Building Maintenance*

CREDITS: 4

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language I	World Language I		
Completer Program Requirements			Advanced Design Applications (1) or Technological Design (1)	Building Maintenance I (4)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Agricultural Mechanical Technology (1), Math elective beyond Alg. II/D.A. (1), Internship (.5-1)			
8 credits possible per year				
End of Program Test:	NCCT Core Exam v2			
Industry:	National Center for Construction Education and Research (NCCER)			
Taken:	At the end of Building Maintenance I			

COMPLETER: *Carpentry*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Carpentry I (3)	Carpentry II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Agricultural Mechanical Technology (1), Math elective beyond Alg. II/D.A. (1), Internship (.5-1)			
8 credits possible per year				
Value Added:	Up to 1 year toward Apprenticeship Associated Builders & Contractors		6 Articulated Credits	
From:			Community College of Baltimore County, Catonsville	
Program:			Construction Technology	
End of Program Test:	NCCT Academic Carpentry Level I v2		NCCT Academic Core v2	
Industry:	National Center for Construction Education and Research (NCCER)		National Center for Construction Education and Research (NCCER)	
Taken:	At the end of Carpentry I		At the end of Carpentry II	

COMPLETER: Cisco Networking Academy

CREDITS: 5 - 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Option 1 Completer Program Requirements 6 credits			CCNA: Discovery I & II (3)	CCNA: Discovery III & IV (3) OR PC Hardware and Software (3)
Option 2 Completer Program Requirements 5 credits			CCNA: Discovery I & II (3)	IT Internship (2) OR Dual Enrollment (2)
Option 3 Completer Program Requirements 5 credits				PC Hardware and Software (3) IT Internship (2) OR Dual Enrollment (2)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied) 8 credits possible per year	Advanced Design Applications (1), Technological Design (1), Honors Financial Management Using Software Applications (1), Accounting I (1), Business Law (1), Internship (.5-1)			
Value Added: From: Program:	Up to 16 Articulated Credits Community College of Baltimore County, Catonsville, Essex, or Dundalk Information Technology			
End of Program Test: Industry: Taken:	Cisco CCENT CCNA / CompTIA A+ certification CISCO / CompTIA At the end of CCNA Discovery / PC Hardware and Software			

COMPLETER: *Collision Repair Technology*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Collision Repair Technology I (3)	Collision Repair Technology II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg. II/DA (.5-1), Accounting I (1), Business Principles & Practices (1), Business Communications & Keyboarding (1), Public Speaking (.5), Internship (.5-1)			
8 credits possible per year				
Value Added:	15 Articulated Credits		Up to 16 Articulated Credits	
From:	Community College of Baltimore County, Catonsville		Penn College of Technology	
Program:	Automotive Collision Repair & Refinishing		Autobody/Collision Repair	
End of Program Test:	NA3SA Exam in Non-Structural Analysis and Damage Repair, Painting and Refinishing, and Structural Analysis and Damage Repair			
Industry:	National Automotive Student Skills Standards Assessment (NA3SA)			
Taken:	At the end of Collision Repair Technology II			

COMPLETER: *Drafting*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Drafting I (3)	Drafting II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg./DA – Course 3 (.5-1), Graphic Communications (1), Honors Commercial Art (.5), Honors Calculus (1), AP Calculus AB (1), AP Calculus BC (1), Art II: 2 & 3 D Art (.5-1), Internship (.5-1)			
8 credits possible per year				
Value Added:	3 Articulated Credits		9 Articulated Credits	
From:	Carroll Community College		Community College of Baltimore County, Catonsville	
Program:	Computer Aided Design		Computer Aided Drafting and Design	

COMPLETER: *Electrical Construction*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Electrical Construction I (3)	Electrical Construction II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Alg./ DA Course 3 (1), Math Elective beyond Alg. II/DA (.5-1), Agricultural Mechanical Technology (1), Business Communications & Keyboarding (1), Public Speaking (.5), Internship (.5-1)			
8 credits possible per year				
Value Added:	Up to 1 year toward Apprenticeship Associated Builders & Contractors		6 Articulated Credits	
From:			Community College of Baltimore County, Catonsville	
Program:			Construction Technology	
End of Program Test:	NCCT Academic Core v2		NCCT Academic Electrical Level I v2	
Industry:	National Center for Construction Education and Research (NCCER)		National Center for Construction Education and Research (NCCER)	
Taken:	At the end of Electrical Construction I		At the end of Electrical Construction II	

COMPLETER: *Engineering Technology - Project Lead the Way Endorsement*

CREDITS: 4

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Honors Principles of Engineering (1) Intro to Engineering Design (1)	Computer Integrated Manufacturing (1) Digital Electronics (1) Honors Engineering Design & Development (1)
Program Specific Requirements	A college preparatory math and science course is required each year of high school. See chart above.			
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Math Electives: Alg./D.A. Course 3 (1), AP Probability & Statistics (1), AP Calculus AB, AP Calculus BC (1), Trig & Pre-Calculus or Honors Trig. & Pre-Calc (1), Science Electives: AP Physics (1), Science Research I, II (1 ea.) AP Chemistry (1), Advanced Technology Ed. Electives: Advanced Design Applications (1), Technological Design (1), Technological Issues & Impacts (1)			
8 credits possible per year				
Value Added:	16 Transcribed Credits		3 Articulated Credits	
From:	Rochester Institute of Technology		University of Maryland Baltimore	
Program:	Engineering		Engineering	
End of Program Test:	Rochester Institute of Technology Exams in Principles of Engineering, Introduction to Engineering Design, Digital Electronics, & Computer Integrated Manufacturing			
Industry:	Project Lead the Way (PLTW)			
Taken:	At the end of the designated course			

COMPLETER: *Heating, Ventilation, Air Conditioning*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			HVAC I (3)	HVAC II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied) 8 credits possible per year	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg. II/DA (.5-1), Business Communications & Keyboarding (1), Public Speaking (.5), Technological Issues & Impacts (1), Internship (.5-1)			
Value Added: From: Program:	6 Articulated Credits Community College of Baltimore County, Catonsville Construction Technology	6 Articulated Credits University of Northwestern Ohio Commercial HVAC & Refrigeration	Up to 1 year toward Apprenticeship Associate Builders and Contractors	
End of Program Test: Industry: Taken:	NCCT Academic Core v2 National Center for Construction Education and Research (NCCER) At the end of HVAC I		NCCT Academic HVAC National Center for Construction Education and Research (NCCER) At the end of HVAC II	

COMPLETER: *Heavy Equipment & Truck Technology*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Heavy Equipment & Truck Technology I (3)	Heavy Equipment & Truck Technology II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied) 8 credits possible per year	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg. II/DA (.5-1), Agricultural Mechanical Technology (1), Business Principles & Practices (1), Business Communications & Keyboarding (1), AP Physics (1), Public Speaking (.5), Technological Impacts & Issues (1), Internship (.5-1)			
Value Added: From: Program:	Up to 8 Articulated Credits Pennsylvania College of Technology Diesel Technology: Heavy Construction Equipment: Technician, Operator or CAT Emphasis; or Electric Power Generation Technology		Up to 12 Articulated Credits University of Northwestern Ohio Diesel Technology	Up to 4 Articulated credits Universal Technical Institute Automotive Technology
End of Program Test: Industry: Taken:	Diesel Engines and Electrical/Electronic Systems National Automotive Student Skills Standards Assessment (NA3SA) At the end of Heavy Equipment & Truck Technology II			

COMPLETER: *Landscaping Design & Construction*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Option 1 Completer Program Requirements			Landscaping Design I (3)	Landscaping Design II (3)
Option 2 Completer Program Requirements		Landscaping (.5)	Landscaping Design I & Construction I (3) OR II (3)	Internship (1)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Landscaping (.5), Accounting I (1), Business Principles & Practices (1), Horticulture (1), Intro to Agriculture, Food, and Natural Resources (1), Marketing (1), Internship (.5-1)			
8 credits possible per year				
Value Added:	3 Articulated Credits			
From:	Community College of Baltimore County, Dundalk			
Program:	Horticulture, Landscape Design and Installation, Turf and Landscape Maintenance			

COMPLETER: *Manufacturing & Machine Technologies*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Manufacturing & Machine Technologies I (3)	Manufacturing & Machine Technologies II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg. II/DA (.5-1), Business Communications & Keyboarding (1), Honors Calculus, AP Calculus AB, Adv. AP Calculus BC (1), Chemistry II (1), Issues in American Society (.5), Public Speaking (.5), Technological Issues & Impacts (1), Internship (.5-1)			
8 credits possible per year				
Value Added:	17 Articulated Credits			
From:	Community College of Baltimore County, Catonsville			
Program:	Computer Automated Manufacturing and Industrial Technology			
End of Program Test:	Measurement, Materials, and Safety and Job Planning Bench Work and Layout			
Industry:	NIMS (National Institute for Metalworking Skills)			
Taken:	During Manufacturing and Machine Technologies I			

COMPLETER: *Masonry*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Masonry I (3)	Masonry II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Accounting I (1), Agricultural Mechanical Technology (1), Business Principles & Practices (1), Internship (.5-1)			
8 credits possible per year				
Value Added:	Up to 1 year toward Apprenticeship Associated Builders & Contractors		6 Articulated Credits Community College of Baltimore County, Catonsville Construction Technology	
From:				
Program:				
End of Program Test:	NCCT Academic Core v2 National Center for Construction Education and Research (NCCER)		NCCT Academic Masonry Level I National Center for Construction Education and Research (NCCER)	
Industry:				
Taken:	At the end of Masonry I		At the end of Masonry II	

COMPLETER: *Welding Technology*

CREDITS: 6

- Guideline for Course Selections
- Refer to Graduation Requirements in the Program of Studies for specific course requirements in each content area

Grade →	9	10	11	12
Exact scheduling depends on student's plan and school's master schedule.	English 9 (1)	English 10 (1)	English 11 (1)	English 12 (1)
	US Government (1)	US History (1)	World History (1)	
	Conceptual Physics (1)	Chemistry (1)	Biology (1)	
	Algebra I / Data Analysis (1)	Intermediate Algebra / Data Analysis (1)	Geometry (1)	Algebra II / Data Analysis (1)
	PE (.5) / Health (.5)		PE (.5) / Financial Literacy (.5)	
	Fine Arts (1)	Foundations of Technology (1)		
	World Language (1)	World Language (1)		
Completer Program Requirements			Welding Technology I (3)	Welding Technology II (3)
Career Specific Electives (may be taken any year offered after prerequisites have been satisfied)	Advanced Design Applications (1), Technological Design (1), Math Elective beyond Alg. 11/DA (.5-1), Business Principles & Practices (1), Business Communications & Keyboarding (1), Honors Financial Management Using Software Applications (1), Internship (.5-1)			
8 credits possible per year				
Value Added:	Up to 1 year toward Apprenticeship Associate Builders & Contractors		American Welding Society (AWS) Certification	
From:				
Program:				
End of Program Test:	NCCT Academic Core v2 National Center for Construction Education and Research (NCCER)		NCCT Academic Welding National Center for Construction Education and Research (NCCER)	
Industry:				
Taken:	At the end of Welding I		At the end of Welding II	