CAREER AND TECHNICAL EDUCATION

Creating a foundation for an educated and skilled workforce in Maryland



2023/24 CTE Program of Study Completer Requirements

"45% of high school students will complete a CTE program of study, earn industry-recognized credentials, or completed a registered youth or other apprenticeship by 2025"

More Jobs for Marylander's Act



NOVEMBER 2023

Career and Technical Education is legislated federally through the Strengthening Career and Technical Education (CTE) for the 21st Century Act (Perkins V) and on state level through Maryland Every Student Succeeds Act Consolidated State Plan; and the Maryland Commission on Innovation & Excellence in Education Report, The More Job for Marylanders Act. This act legislated that 45% of high school students will complete a CTE program of study, earn industry-recognized credentials, or complete a registered youth or other apprenticeship by 2025. To help us meet that requirement, MSDE issued many changes this year that impact our CTE Program of Studies and our completer requirements. Most importantly, the following programs now only require three courses to meet completer requirements: Ag: Horticulture, Pre-Vet, and Mechanics, Business Management and Finance and Accounting, and Career, Research and Development.

The goal of the changes will allow more students to access and complete a CTE program of study. The intent of CTE is to establish a foundation that prepares "an educated and skilled workforce in Maryland". Students take several paths to the workforce. Studies show that students who complete CTE programs of study, whether they intend to go on to higher education or directly to the workforce, are better prepared for employment.

Ways for FCPS to meet the 45% requirement.

- View CTE as a series of sequential courses and not electives.
- Financial literacy choice should align to students CTE completers when possible to eliminate additional requirements.

Financial Literacy: The following completers offered in high schools, have a course that meets financial literacy requirements. MSDE **does not** consider this double dipping as their financial literacy requirement is for an experience not a class. It is FCPS that requires the 1/2 credit course.

CTE Completer	Course that meets Financial Literacy
	j
Ag Completers: Animal Science	Intro to Agricultural Science and Technology
Horticulture	Agri-Business or DE BMGT 140 w/FL at CTC
Business Education Completers:	Principles Of Business Management and Entrepreneurship
Business Administrative Services	/ or DE BMGT 103 w/FL
Business Management	Principles of Finance and Accounting
Finance and Accounting	
Marketing	
Child Development	CDA 3 Early Childhood as a Profession ends after
	2023-24
	CDA 2 Learning Env, of Preschoolers starts 2024-25
Career Research and Development (formerly	Career and College Prep
Work Study)	Intro to CRD
	Advanced CRD or DE ACCE 130 w/FL

Questions regarding completer programs should be referred to Dr. Kristine Pearl, Supervisor of Career and Technical Education.

Frederick County Public Schools Career and Technical Education CTE Program Completer Requirements

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Frederick County Public Schools Career and Technical Education CTE Program Completer Requirements

Academy of Health Professions (CTC)

All nursing students take these two foundation courses.

Course Number	Credits	Course Title
398100	1 credit	Foundation of Medicine and Science
398101	1 credit	Structure and Function of the Human Body

CIP: 510050 Option 1 Nursing Assistant

531230	2 credits	Nursing Assistant (Required)
531272	2 credits	Allied Health Internship OR
531270	2 credits	College Allied Health OR
531280	2 credits	Guided Research in Allied Health

CIP: 510053 Option 2 Medical Assisting

531240	2 credits	Medical Assisting, Clinical
531250	2 credits	Medical Assisting, Administrative

Dental and Physical Rehabilitation (CTC) Students take these two foundation courses.

Course Number	Credits	Course Title
531273	1 credit	Foundation of Medicine and Science
531274	1 credit	Structure and Function of the Human Body

CIP: 510054 Physical Rehabilitation

531275	2 credits	Physical Rehabilitation
531271 531272	1 credit OR 2 credits	Physical Rehabilitation Internship

CIP: 510052 Dental Assistant NEW for 23-24

533035	2 credits	Dental Assisting
533036 or 533037	1 credit OR 2 credits	Dental Health Internship

Academy of Health Professions at Frederick High School

All students take the two foundation courses before selecting one of three specialties:

Course Number	Credits	Course Title
398100	1 credit	Foundation of Medicine and Science
398101	1 credit	Structure and Function of the Human Body

CIP: 510057 Specialty Option 1 Certified Nursing Assistant (5 total credits required)

Course Number	Credits	Course Title
533092OC	1 credit	Certified Nursing Assistant 1 at FCC CAH 132
533093OC	1 credit	Certified Nursing Assistant 2 at FCC CAH 133
533094OC	1 credit	Clinical Internship with FCC CAH 114

CIP 510057 Specialty Option 2 Dental Assisting (4 total credits required)

Course Number	Credits	Course Title
533095OC	1 credit	Dental Assisting 1 at FCC CAH 439
533096OC	1 credit	Oral Radiology with Clinical with FCC CAH 496

CIP: 510051 Specialty Option 3 Pharmacy Tech (4 total credits required)

Course Number	Credits	Course Title
531330	1 credit	Pharmacy Tech
531301	1 credit OR	Clinical Internship
531302	2 credits	Chinear internship

CIP: 520251 Agri- Business at CTC

Course Number	Credits	Course Title
539984	1 credit	Dual Enrollment BGMT 140 Principles Of Agri Business
332040	1 credit	Principles Of Finance and Accounting
338000	1 credit	Principles of Marketing
530009	1 credit	Dual Enrollment (BGMT 109) Entrepreneurship & Small Bus.

CIP: 480508 Agricultural and Commercial Metals Technology (CTC)

Course Number	Credits	Course Title
533144	2 credits	Welding: Agricultural and Commercial Metals Technology 1A
533442	2 credits	Welding: Agricultural and Commercial Metals Technology 1B
534144	2 credits	Welding: Agricultural and Commercial Metals Technology 2A
535142	2 credits	Welding: Agricultural and Commercial Metals Technology 2B

CIP: 018000 Agriculture – Animal Science

Three courses from Section A required for completer.

Course Number	Credits	Course little
492351	1 credit	Introduction to Agricultural Science and Technology (meets FL)
492000	1 credit	Pre-Vet, Small Animal Care
493000	1 credit	Pre-Vet, Large Animal Science

CIP: 018000 Agriculture – Mechanics Three courses from section A required

Course Number	Credits	Course Title
491050	1 credit	Engine and Power Technology 1
491051	1 credit	Engine and Power Technology 2
491361	1 credit	Advanced Mechanics

CIP: 151350 Architecture, Engineering Construction and Design

Course Number	Credits	Course Title
392500	1 credit	AEC Management 1
392510	1 credit	AEC Management 2
392520	1 credit	AEC Management 3
392530	1 credit	AEC Management Capstone

CIP: 470635 Automotive Body/Collision Repair and Refinishing (CTC)

Course Number	Credits	Course Title
533202	2 credits	Auto Body/Collision Repair and Refinishing 1A
533203	2 credits	Auto Body/Collision Repair and Refinishing 1B
535033	2 credits	Auto Body/Collision Repair and Refinishing 2A
535034	2 credits	Auto Body/Collision Repair and Refinishing 2B

CIP: 470601 Automotive Mechanics – Brunswick High School

Course Number	Credits	Course Title
492110	1 credit	Automotive Mechanics 1
492130	2 credits	Automotive Mechanics 2
494111	2 credits	Automotive Mechanics 3

CIP: 470645 Automotive Technology (CTC)

Course Number	Credits	Course Title
533064	2 credits	Automotive Technology 1A
533065	2 credits	Automotive Technology 1B
534064	2 credits	Automotive Technology 2A
535062	2 credits	Automotive Technology 2B

CIP: 511150 Biomedical Sciences PLTW - Option 1 (CTC)

Course Number	Credits	Course Title
535100	2 credits	Principles of the Biomedical Sciences
531000	2 credits	Human Body Systems
531200	2 credits	Medical Interventions
531100	2 credits	Biomedical Innovation

CIP: 511150 Biomedical Sciences PLTW - Option 2 Program at Tuscarora High School

Course Number	Credits	Course Title
395100	1 credit	Principles of the Biomedical Sciences
391000	1 credit	Human Body Systems
391200	1 credit	Medical Interventions
399100	1 credit	Biomedical Innovation

CIP: 520451 Business Administrative Services

Four courses required for CTE program completer *Course names and content were updated for SY21

Course Number	Credits	Course Title
331010 330001	1 credit	Principles Of Business Management and Entrepreneurship/ OR Dual Enrollment (BMGT 103) Intro to Business
333040	1 credit	Principles Of Finance and Accounting
335111 331006	1 credit	Office Systems Management 1 Dual Enrollment (CMIS 101) Intro Computers & Information Processing
335121 330006	1 credit	Office Systems Management 2

CIP: 520251 Business Management Three credits required

Course Number	Credits	Course Title
331010	1 credit	Principles Of Business Management and Entrepreneurship/ OR
330001	1 credit	Dual Enrollment (BMGT 103) Intro to Business
333040	1 credit	Principles Of Finance and Accounting
333090 539985	1 credit	Advanced Business Management OR Dual Enrollment (BGMT 109) Entrepreneurship & Small Bus.

CIP: 520251 Agri- Business at CTC

Course Number	Credits	Course Title
539984	1 credit	Dual Enrollment BGMT 140 Principles Of Agri Business
332040	1 credit	Principles Of Finance and Accounting
338000	1 credit	Principles of Marketing
530009	1 credit	Dual Enrollment (BGMT 109) Entrepreneurship & Small Bus.

CIP: 521409 Business Marketing Three credits required

Cours	se Number	Credits	Course Title
	331010	1 anadis	Principles Of Business Management and Entrepreneurship/ OR
	330001	1 credit	Dual Enrollment (BMGT 103) Intro to Business
	333040	1 credit	Principles Of Finance and Accounting
	338000	1 credit	Principles of Marketing

CIP: 151390 CAD Architecture (CTC)

Course Number	Credits	Course Title
533085	2 credits	Architecture CAD 1A
533086	2 credits	Architecture CAD 1B
534241	2 credits OR	Architecture CAD 2A OR
534241	1 credit	Architecture CAD 2A PLUS
539989	1 credit	Dual Enrollment (CADT 150) Architectural Drawing and Design
534251	2 credits	Architecture CAD 2B
539989	2 credits	Arcintecture CAD 2B

CIP: 151390 CAD Engineering (CTC)

Course Number	Credits	Course Title
533072	2 credits	Engineering CAD 1A
533073	2 credits	Engineering CAD 1B
534261	2 credits	Engineering CAD 2A
534271 534271 531096	2 credits 1 credit 1 credit	Engineering CAD 2B OR Engineering CAD 2B PLUS Dual Enrollment (CMIS 105) Intro to Programming

CIP: 465200 Carpentry (CTC)

Course Number	Credits	Course Title
533341	2 credits	Carpentry 1A
533342	2 credits	Carpentry 1B
535042	2 credits	Carpentry 2A
535043	2 credits	Carpentry 2B

CIP: 860000 Career Research and Development

Three credits required: Per MSDE requirements: all students enrolled in work study must be concurrently enrolled in Advanced CRD. Prerequisite for Advanced CRD is Intro to CRD taken in 10th or 11th grade.

Section A (2 credits required)

Course Number	Credits	Course Title
		Introduction to Career Research & Development
498000	1 credit	Can include: Dual Enrollment (ACCE 107) Choosing a Major or
		Career
OR		
498110	1 credit	Career and College Prep New in 2022-23
AND taken concurrently with work study experience		
494510	494510	Advanced Career Research Preparation and Transition OR
	1 credit	Dual Enrollment (ACCE 130) Career Assessment and Planning

Section B (1 credit required)

494470 or 494480	.5 credit	Work Study A or B
494410 or 494420	1 credit	Work Study A or B
494400 or 494490	1.5 credits	Work Study A or B
494500 or 494520	2 credits	Work Study A or B
494430 or 494440	3 credits	Work Study A or B
494450 or 494460	4 credits	Work Study A or B

CIP: 200201 Child Development Associate New courses for level 3 and 4 for 2023-24

Course Number	Credits	Course Title
362040	1 credit	CDA 1 Child Growth and Development
363051	1 credit	CDA 2 Learning Environment for Preschoolers (\$ financial literacy starting in 24-25)
360112 (F) 360212 (S) 360321 (F) 360412 (S)	1 credit 1 credit 2 credit 2 credit	CDA 3 CDA Portfolio and Internship 1* or ECED 125 or CDA 3 CDA Portfolio and Internship 2* meets financial literacy for 23-24
360113 (F) 360213 (S) 360114 (F) 360214 (S)	1 credit 1 credit 2 credit 2 credit	CDA 4 CDA Portfolio and Internship 1* or CAD 4 CDA Portfolio and Internship 2 *

[•] Students must have transportation to complete internships at elementary schools or private licensed child care centers. The new CDA program of study requires 3 internship credits starting 2024-25.

CIP: 110950 CISCO Networking Academy (CTC)

Course Number Credits Course Title

Semesters 1 & 2—Computer Tech Analyst Program Required—4 credits (required)

538514	2 credits or	Intro to Network and Comp TIA 1A OR
538514	1 credit	Intro to Network and Comp TIA 1A PLUS
539986	1credit	Dual Enrollment CMIS 120: Operating Systems
538515	1 credit	Intro to Network and Comp TIA 1B PLUS
538516	1 credit	Linux Essentials OR
531097	1 credit	Dual Enrollment CMIS 121PC Repair and Diagnostics PLUS
539980	1 credit	Dual Enrollment CMIS 290 Network Fundamentals

For student wishing to also earn Cisco Networking Academy 6 credits required

Semester 3—CISCO 1 & 2—2 credits (required)

538551 539981		Switching and Routing & Wireless Essentials OR Dual Enrollment CMIS 291 Routing Technology
337761		Dual Elifoliment CWIS 291 Routing Technology
0	CICCO 2 P 4	

Semester 4—CISCO 3 & 4—2 credits (optional)

538552 539982 539983	2 credits	Networking Security and Automation 1B OR Dual Enrollment CMIS 292 Switching Technology term 3 PLUS Dual Enrollment CMIS 293WAN Technology term 4
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Semester 5—Security+—2 credits (optional)

538553 539987	2 credits	Cybersecurity Essentials and CCNA Security + OR Dual Enrollment CMIS 281 Security Fundamentals

Semester 6—Linux+—2 credits (optional)

538556	2 credits	Linux + OR
538557		Dual Enrollment CMIS 111L Unix/Linux Operating System

CIP: 110191 Computer Science

Three credits required

Course Number	Credits	Course Title
343012	1 credit	Foundations of Computer Science* *If this course is taken as the Computer Science & Engineering Graduation credit, it will not count as part of the completer
343011	1 credit	AP Computer Science Principles
343012	1 credit	AP Computer Science A
*One from below if Foundations of Computer Science was taken as Computer Science & Engineering credit		
344030	1 credit	Advanced Computing Concepts
see Course Guide page 75	1 credit	Computer Science Internship
see Course Guide page 75	1 credit	Computer Science Work Study

CIP: 120450 Cosmetology (CTC)

Course Number	Credits	Course Title
532024	2 credits	Cosmetology 1A
532025	2 credits	Cosmetology 1B
533024	4 credits	Cosmetology 2A
533028	4 credits	Cosmetology 2B

CIP: 120550 Culinary Arts American Culinary Federation (ACF) Culinary and Baking (CTC)

Course Number	Credits	Course Title
533224	2 credits	Culinary Arts 1A
533321	2 credits	Culinary Arts 1B
AND		
534164	2 credits	Culinary Arts 2A
535162	2 credits	Culinary Arts 2B
OR		
533301	2 credits	Baking 1A
533302	2 credits	Baking 1B

CIP: 120504 Culinary/Hospitality offered at Frederick High School

Section A (3 credits required)

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362040	1 credit	Culinary 1 Can include:
539116		Dual Enrollment (HCTI 101) Sanitation and Food Safety
363070	1 credit	Culinary 2 OR
		Dual Enrollment (HCTI 102) Culinary 1
364070	1 credit	Hospitality Management OR
] 304070		Dual Enrollment (HCTI 150) Hospitality Management

Section B (1 credit required)

360031 360035	1 credit	Culinary/Hospitality Internship 1 A Culinary/Hospitality Internship 1 B
360032 360036	2 credits	Culinary/Hospitality Internship 2 A Culinary/Hospitality Internship 2 B
360040 360041	1 credit	Culinary/Hospitality Work Study 1A Culinary/Hospitality Work Study 1B
360050 360051	2 credits	Culinary/Hospitality Work Study 2A Culinary/Hospitality Work Study 2B

CIP: 100350 Digital Design and Printing Methods (Print ED) (CTC)

Course Number	Credits	Course Title
532054	2 credits	Digital Design and Printing Methods 1 A
532055	2 credits	Digital Design and Printing Methods 1B
534214	2 credits	Digital Design and Printing Methods 2A
534215	2 credits	Digital Design and Printing Methods 2B

CIP: 465300 Electricity (CTC)

Course Number	Credits	Course Title
533054	2 credits	Construction Electricity 1A
533152	2 credits	Construction Electricity 1B
534054	2 credits	Construction Electricity 2A
535052	2 credits	Construction Electricity 2B

CIP: 010650 Environmental Landscape Design & Management (CTC)

Course Number	Credits	Course Title
533111	2 credits	Environmental Landscape Design & Management 1A
533112	2 credits	Environmental Landscape Design & Management 1B
533113	2 credits	Environmental Landscape Design & Management 2A
533114	2 credits	Environmental Landscape Design & Management 2B OR
491030	1 credit	Horticulture/Floriculture 1
492031	1 credit	Horticulture/Floriculture 2

CIP: 520354 Finance and Accounting Three courses required Course Number Credits Course

Course Number	Credits	Course Title
331010	1 credit	*Introduction to Business/ Principles Of Business Management OR
330001		Dual Enrollment (BMGT 103) Intro to Business
333040	1 credit	Principles Of Finance and Accounting
333041 330002	1 credit	Advanced Accounting

CIP: 430350 Homeland Security and Criminal Justice (CTC)

Course Number	Credits	Course Title
539114	2 credits	Criminal Justice 1A
539115	2 credits	Criminal Justice 1B
539134	2 credits	Criminal Justice 2A
539121 539990	2 credits	Criminal Justice 2B OR Dual Enrollment (EMGT 111) Preparing and Securing the Homeland

CIP: 018000 Horticulture Option 1

Three courses required

Course Number	Credits	Course Title
492351	1 credit	Intro to Agri-Science
491030	1 credit	Horticulture/Floriculture 1
492031	1 credit	Horticulture/Floriculture 2

Electives: Not required

Electives, Ivotice and		
493031	1 credit	Horticulture/Floriculture 3
492150	1 credit	Agriculture/Horticulture Independent Study
492160	1 credit	Forestry/Wildlife Management
490001 490005	1 credit	Agricultural Internship 1A Agricultural Internship 1B
490002 490006	2 credits	Agricultural Internship 2A Agricultural Internship 2B
490010 490013	1 credit	Agricultural Work Study 1A Agricultural Work Study 2B
490020 490023	2 credits	Agricultural Work Study 1A Agricultural Work Study 2B

CIP: 280410 HVACR & Plumbing (CTC) OLD CIP 470201

Course Number	Credits	Course Title
533104	2 credits	HVACR & Plumbing 1A
533105	2 credits	HVACR & Plumbing 1B
534104	2 credits	HVACR & Plumbing 2A
534105	2 credits	HVACR & Plumbing 2B

CIP: 100290 Interactive Media and Web Design (CTC)

Course Number	Cre	edits Course Title
538511	2 credits	Interactive Media and Web Design 1A
538521	2 credits	Interactive Media and Web Design 1B

CIP: 475200 Navy Junior Reserve Officers Training Corps (NJROTC) 3 courses required for completer

Course Number	Credits	Course Title
568810	1 credit	Naval Science 1
568820	1 credit	Naval Science 2
568830	1 credit	Naval Science 3
Optional for CTE Completer		
568840	1 credit	Naval Science 4

CIP: 155000 Project Lead the Way (PLTW) – Engineering (LHS, THS and WHS)

DE is now considered a specialty course and is no longer required. Students need IED as a prerequisite so we recommend taking IED as the Engineering grad requirement. * The 3 credits required for completer.

497011	1 credit	Introduction to Engineering Design (IED) (Eligible for Computer Science & Engineering credit)
497000	1 credit	Principles of Engineering (POE) (Pre-req: IED) *
497001	1 credit	Engineering Design and Development (EDD) *
One of the speciality course options below *		
497301	1 credit	Digital Electronics (DE) (now a specialty course)
497401	1 credit	Civil Engineering and Architecture (LHS)
491200	1 credit	Aerospace Engineering (WHS)
497201	1 credit	Computer Integrated Manufacturing (THS)

CIP: 130150 Teaching Academy of Maryland (CTC)

Completion of all four courses required for CTE program completer

Course Number	Credits	Course Title
562001	1 credit	Teaching As a Profession
363400 539123	1 credit	Human Growth and Development OR Dual Enrollment (EDPS 210) Human Growth and Development
361160	2 credits	Foundations of Curriculum and Instruction
362001	1 OR 2 credits	Internship/Field Experience

CIP: 100290 Television/Multimedia Production (CTC)

Course Number	Credits	Course Title
531024	2 credits	Television/Multimedia Production 1A
531025	2 credits	Television/Multimedia Production 1B
531044	2 credits	Television/Multimedia Production 2A
531051 539988	2 credits	Television/Multimedia Production 2B OR Dual Enrollment (FILM 144) Digital Video Production

CIP: 151350 Wood, Design and Applications

Course Number	Credits	Course Title
496120	1 credit	Wood Design and Application (WDA) 1
496220	1 credit	Wood Design and Application (WDA) 2
496321	1 credit	Wood Design and Application (WDA) 3
496421	1 credit	Wood Design and Application (WDA) 4

CIP: 860500 Youth Apprenticeship

Course Number	Credits	Course Title
Varies	1 credit	Related Instruction: Must be an elective or non-required course related to the career pathway. Contact CTE Supervisor for clarification
495701 (1A) 495702 (1B) 495703 (2A) 495704 (2B)	3 credits	Apprenticeship (WBL) Experience 450 hours Three credit course options are also available