

Career-Technical Assurance Guide (CTAG) Guidance Document (Updated August 21, 2018)

Career-Technical Assurance Guide (CTAG) Technology		Career-Technical Articulation Numbers (CTANs)	Required National/State Accreditation and/or Approval for Adult, Secondary & Higher Education Institutions	EMIS Code	ODE Course	Requirements/Credentials/Licenses Needed to Access College Credit (For most courses, students must matriculate to an institution of higher education within three years of completing the secondary program or within the currency of an industry certification.)		
						Course Grade	End-of-course exam score	Other Requirements
Administrative and Professional Support	Office Procedures	CTAPS001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	142005	Office Management	"C" or better	54 or higher	N/A
Agribusiness and Production Systems	Crop Production	CTAGP001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010620	Agronomic Systems	"C" or better	50 or higher	N/A
	Soil Fertility and Fertilizers	CTAGP002 (3 Semester)		010610	Greenhouse and Nursery Management	"C" or better	63 or higher	N/A
	Agribusiness Management	CTAGP003 (3 Semester)		010115	Business Management for Agricultural and Environmental Systems	"C" or better	63 or higher	N/A
Air Transportation	Air Transportation	CTAIR001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	177020	Aviation Airport Management	"C" or better	73 or higher	N/A
	Aircraft Ground Operations	CTAIR002 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS. Sending school must be approved by Federal Aviation regulations with Part 147 certification to be eligible to transfer credit to a Part 147 program. Students from sending schools that are not Part 147 certified can only transfer credit to a non-Part 147 certified institution that offers this content.	177014	Aviation Maintenance General	"C" or better	71 or higher	N/A
	Aviation Meteorology	CTAIR003 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	177019	Aviation Meteorology	"C" or better	72 or higher	N/A
	Introduction to Aviation	CTAIR004 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	177013	Aviation	"C" or better	74 or higher	N/A
	Private Pilot Theory	CTAIR005 (3 Semester)	Teacher must be an FAA certified flight instructor.	177021	Aviation Pilot Training	"C" or better	N/A	Pass the FAA Private Pilot-Airplane Certificate written exam.
Animal Science and Management	Introduction to Animal Science	CTASM001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010910	Animal Science and Technology	"C" or better	50 or higher	N/A
Automotive Technology	Introduction to Automotive Service and Repair	CTAUT005 (2 Semester)	National Automotive Technicians Education Foundation (NATEF) Program Accreditation.	177000	Ground Transportation Maintenance	"C" or better	N/A	Complete a NATEF accredited program at an approved secondary career-technical center or an adult career-technical enter. Pass the ASE/NATEF Student Examination for Maintenance and Light Repair or Automobile Service and Technology.
	Introduction to Medium and Heavy Transportation Equipment Technology	CTAUT006 (2 Semester)		177000*	Ground Transportation Maintenance (*Not all secondary institutions will possess NATEF accreditation to teach this component.)	"C" or better	N/A	Complete a NATEF accredited program at an approved Ohio adult career-technical institution and pass the ASE/NATEF Examination for Medium/Heavy Truck Service and Repair. Secondary students pass the ASE/NATEF Examination for Medium/Heavy Truck Service and Repair and matriculate to an institution of higher education with an approved program.
Basic Police Officer		Currently Under Revision						
Biotechnology for Food, Plant and Animal Science	Biotechnology Principles	CTBTC001 (3 semester)	Certificate of Affirmation can be used for course submission through CEMS.	012010	Animal and Plant Biotechnology	"C" or better	60 or higher	N/A
	Bioinformatics	CTBTC002 (3 Semester)		012025	Bioresearch	"C" or better	48 or higher	N/A
Clinical/Medical Laboratory Technology	Intro to Medical (Clinical) Laboratory Science	CTMLT001 (2-3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	072100	Clinical Laboratory Techniques	"C" or better	65 or higher	N/A
Construction Technology	Plan Reading	CTCON001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	178019	Plan Reading	"C" or better	64 or higher	N/A
	Construction Safety (OSHA 30 Hour Safety)	CTCON002 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS. Institutions are required to ensure that an OSHA certified instructor is teaching the curriculum. Instructor credentials are required with course submission.	178018	Construction Safety	"C" or better	64 or higher	Must possess a current and valid OSHA 30 hour card in construction.
	Construction Methods and Materials	CTCON003 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	178001	Carpentry and Masonry Technical Skills	"C" or better	75 or higher	N/A
Criminal Justice	Introduction to Criminal Justice	CTCJ001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	170911	The American Criminal Justice System	"C" or better	47 or higher	N/A
				170913	Police Work and Practice in Public Safety		56 or higher	
				170915	Correctional System and Services		60 or higher	
Early Childhood Education	Introduction to Early Childhood Education	CTECE001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	350205	Early Childhood Education Principles	"C" or better	50 or higher	N/A
	Health, Safety and Nutrition	CTECE002 (2 Semester)		350230	Health, Safety, and Nutrition	"C" or better	65 or higher	N/A
	Infant and Toddler Curriculum	CTECE003 (3 Semester)		350210	Infant and Toddler Education	"C" or better	57 or higher	N/A

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Education	Introduction to Education	CTEDU007 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	350010	Education Principles	"C" or better	68 or higher*	*Exam score represents a combined score of 68 or higher on the end-of-course exam and the required portfolio.
Engineering Technology: Mechanical	Manufacturing Processes	CTMET004 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	175003	Manufacturing Operations	"C" or better	73	N/A
	CADD	CTMET005 (3 Semester)		175006	Computer Integrated Manufacturing	"C" or better	60	N/A
Emergency Medical Services*	Emergency Medical Responder	CTEMS001 (2 Semester)	State accredited at each program level by the Ohio Department of Public Safety, Division of Emergency Medical Services, and the National Highway Traffic Safety Administration.	N/A	N/A	N/A	N/A	Current and valid Emergency Medical Responder Certificate.
	Emergency Medical Technician	CTEMS002 (7 Semester)		N/A	N/A	N/A	N/A	Current and valid Emergency Medical Technician Certificate.
	Advanced Emergency Medical Technician	CTEMS003 (8 Semester)		N/A	N/A	N/A	N/A	Current and valid Advanced Emergency Medical Technician Certificate.
	Paramedic	CTEMS004 (30 Semester)		N/A	N/A	N/A	N/A	Current and valid Ohio Paramedic Certificate.
Engineering Technology: Electrical	DC Circuits	CTEET001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	175011	DC and AC Electronics	"C" or better	61 or higher	Complete DC and AC Electronic Circuits (175011) with a "C" or better and earn a score of 61 or higher on the end-of-course exam, or Engineering Principles (175002) with a "C" or better and earn a score of 48 or higher on the end-of-course exam, and in some cases Robotics (175004) with a "C" or better and earn a score of 64 or higher on the end-of-course exam, from an approved high school program, OR successfully complete an approved Electronics program at an Ohio Technical Center. Students must also complete the requirement for Algebra at the matriculating institution in order to receive credit for DC Circuits.
				175002	Engineering Principles	"C" or better	48 or higher	
				175004	Robotics	"C" or better	64 or higher	
	Digital Electronics	CTEET002 (4 Semester)		175007	Digital Electronics	"C" or better	56 or higher	N/A
	Programmable Logic Controls	CTEET003 (3 Semester)		175004	Robotics	"C" or better	64 or higher	Complete Robotics (175004) from an approved secondary career-technical institution and earn a score of 64 or higher on the end-of-course exam, OR successfully complete an approved program at an Ohio Technical Center.
Entrepreneurship	Introduction to Entrepreneurship	CTENTR001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	141030	Strategic Entrepreneurship	"C" or better	56 or higher	N/A
Exercise Science	Introduction to Exercise Science	CTES001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	072000	Exercise and Athletic Training	"C" or better	56 or higher	N/A
	Fitness and Health Foundations	CTES002 (3 Semester)		072020	Fitness Evaluation and Assessment	"C" or better	61 or higher	N/A
Fire Science Technology**	Volunteer Fire Fighter	CTVFF001 (1 Semester)	State chartered in each area by the Ohio Department of Public Safety, Division of Emergency Medical Services, or Office of Fire Science.	N/A	N/A	N/A	N/A	Current Ohio Volunteer Fire Fighter Certification and completion of Volunteer Fire Fighter training course at an Ohio public institution.
	Fire Fighter I	CTFF002 (7 Semester)		N/A	N/A	N/A	N/A	Current Ohio Fire Fighter I Certification; Required NIMS 100 and 700.
	Fire Fighter II	CTFF003 (11 Semester)		N/A	N/A	N/A	N/A	Current Ohio Fire Fighter I and II certifications or an Ohio Fire Fighter II Certification; completion of training courses offered by an Ohio public OTC or college/university.
	Fire Safety Inspector	CTFINS001 (3 Semester)		N/A	N/A	N/A	N/A	Current Ohio Fire Fighter Certification as a Fire Safety Inspector and employed as a firefighter in Ohio.
	Fire Service Instructor	CTFSI001 (3 Semester)		N/A	N/A	N/A	N/A	Current Ohio Fire Fighter Certification as a Fire Service Instructor.
Food Science	Introduction to Food Processing	CTFSC001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	011010	Science and Technology of Food	"C" or better	61 or higher	Students must also complete secondary courses in Biology and Chemistry.

*EMT curricula leading to the various credentials are separate endeavors. That is, the EMT-B curriculum does not replace any portion of the EMT-I or P curriculum. The same is true for the EMT-I curriculum. It does not replace any portion of either the EMT-B or P curriculum. Thus, students holding EMT-B certificates desiring to advance to EMT-I or EMT-P are required to take all portions of the EMT-I or EMT-P curriculum and would earn credits assigned to each curriculum by the college or university. However, the state statute allows medical and program directors to award "previous training credit" for those holding EMT-I certificates who desire to enter an EMT-P training program. As a result, students could earn 30 Semester hours for EMT-P, in addition to 8 Semester hours toward EMT-I.

**Credit hours listed for each CTAN for Fire Fighter programs are maximum hours awarded up to each level of training. For example, if a student has successfully completed and earned credit for Volunteer Fire Fighter, four semester credits will be awarded for Fire Fighter I. If a student has successfully completed and earned credit for Fire Fighter I (or Volunteer Fire Fighter and Fire Fighter I), five semester credits will be awarded toward Fire Fighter II.

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Health Information Management	Intro to Health Information Management	CTHIM001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	072135	Health Information Technology	"C" or better	62 or higher	N/A
	Legal and Ethical Aspects of Health Information Management	CTHIM002 (2 Semester)		072140	Health Information Management	"C" or better	57 or higher	N/A
Heating Ventilation Air Conditioning/ Refrigeration (HVAC/R)		Currently Unavailable for submission. CTAG is under review.						
Horticulture	Floral Design and Marketing	CTHOR001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010625	Floral Design and Marketing	"C" or better	64 or higher	N/A
	Landscape Maintenance	CTHOR002 (3 Semester)		010640	Landscapes Hardscapes	"C" or better	56 or higher	N/A
	Equipment Operation and Maintenance	CTHOR003 (3 Semester)		010615	Landscape Systems Management	"C" or better	64 or higher	N/A
	Plant and Horticulture Science	CTHOR004 (3 Semester)		010155	Plant and Horticulture Science	"C" or better	64 or higher	N/A
	Turf-Grass Management	CTHOR005 (3 Semester)		010635	Turf Science and Management	"C" or better	60 or higher	N/A
Hospitality, Tourism, and Culinary Arts	Sanitation and Safety	CTCF001 (1 Semester)	Institutions must currently offer the ServSafe—National Restaurant Association Program and provide documentation for an instructor who is Certified ServSafe.	N/A	N/A	N/A	N/A	The student must hold a current ServSafe Manager Certification offered through the National Restaurant Association to receive credit.
	Introduction to Hospitality and Tourism	CTCF002 (2 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	330000	Hospitality Fundamentals	"C" or better	68 or higher	N/A
	Basic Food Production	CTCF005 (3 Semester)	Institutions must hold either American Culinary Federation certification or provide a Certificate of Affirmation through CEMS.	330100	Fundamentals of Food Production	"C" or better	76 or higher	Some colleges may require prerequisite completion of, or concurrent enrollment in, Sanitation and Safety (ServSafe).
	Front Office Operations	CTCF006 (2 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	N/A	N/A	N/A	N/A	Secondary institutions should submit for CTCF008, not CTCF006.
	Technology in the Hospitality Industry	CTCF007 (2 Semester)		330035	Hospitality Management	"C" or better	64 or higher	N/A
	Front Office Operations and Housekeeping Operations for the Lodging Industry	CTCF008 (3 Semester)		330030	Front Office Management and Operation	"C" or better	77 or higher	N/A
	Food Principles and Purchasing	CTCF009 (3 Semester)		330120	Restaurant Management	"C" or better	66 or higher	N/A
Industrial Power Technology	Hydraulics and Pneumatics Systems	CTAIE001 (2 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010225	Hydraulics and Pneumatics	"C" or better	61 or higher	N/A
Interactive Media	2-D Animation	CTIM001 (3 Semester)		145115	Animation	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.
	Raster Graphics	CTIM002 (3 Semester)		145100	Creating and Editing Digital Graphics	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.
	Vector Graphics	CTIM003 (3 Semester)		145105	Multimedia and Image Management Techniques	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.

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Interactive Media (continued)	Internet and Web Languages	CTIM004 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	145010	Web Design	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	Graphical Website Design	CTIM005 (3 Semester)		145125	Interactive Application Development	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	Digital Video Production	CTIM006 (3 Semester)		145110	Video and Sound	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	3-D Modeling and Animation	CTIM007 (3 Semester)		145120	3-D Modeling	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	Electronic Publishing	CTIM008 (3 Semester)		145095	Design Techniques	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
Information Support Services/Network Systems	Networking/CompTIA Network +	CTIT002 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS. Institutions may submit for CTIT015 or CTIT006, but not both.	145035	Networking	"C" or better	In Field Testing	Complete ODE courses 145035 and 145045 OR the student must hold the CompTIA Network + certification, Cisco Certified Network Associate, Cisco Certified Entry Networking Technician certification, or passed Cisco I and II semester tests. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
				145045	Network Management	"C" or better	In Field Testing		
	Introduction to Desktop Operating Systems	CTIT005 (3 Semester)		145030	Computer Software	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	Introduction to User Support	CTIT006 (3 Semester)		145050	Network Security	"C" or better	In Field Testing	Complete ODE course 145050 OR the student must hold the current Microsoft Enterprise Desktop Support Technician credential. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	CompTIA Security +	CTIT015 (3 Semester)		145050	Network Security	"C" or better	In Field Testing	Complete ODE course 145050 OR the student must hold the CompTIA Security + certification. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.	
	Cisco I: CCNA-1 Introduction to Networks	CTIT007 (3 Semester)		Until valid WebXam score are received, this CTAN will require a full submission and faculty panel review for approval.	N/A	N/A	"C" or better	N/A	Complete the CISCO course with a "C" or better, and pass applicable semester tests in Cisco I/II curriculum OR hold current Cisco certification (CCNA certificate, CCENT certificate).
				The institution must offer the approved CISCO curriculum.	N/A	N/A	"C" or better	N/A	
					N/A	N/A	"C" or better	N/A	
					N/A	N/A	"C" or better	N/A	
	Cisco II: CCNA-2 Routing and Switching Essentials	CTIT008 (3 Semester)		The institution must offer the approved CISCO curriculum.	N/A	N/A	"C" or better	N/A	Complete the CISCO course with a "C" or better, and pass applicable semester tests in Cisco III/IV curriculum OR hold current Cisco certification (CCNA certificate).
					N/A	N/A	"C" or better	N/A	
	Cisco III: CCNA-3 Scaling Networks	CTIT009 (3 Semester)		The institution must offer the approved CISCO curriculum.	N/A	N/A	"C" or better	N/A	Complete the CISCO course with a "C" or better, and pass applicable semester tests in Cisco III/IV curriculum OR hold current Cisco certification (CCNA certificate).
N/A			N/A		"C" or better	N/A			
Cisco IV: CCNA-4 Connecting Networks	CTIT010 (3 Semester)	The institution must offer the approved CISCO curriculum.	N/A	N/A	"C" or better	N/A	Complete the CISCO course with a "C" or better, and pass applicable semester tests in Cisco III/IV curriculum OR hold current Cisco certification (CCNA certificate).		
			N/A	N/A	"C" or better	N/A			
Microsoft Windows Desktop Operating System	CTIT011 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS. Institutions may submit for CTIT013 or CTIT016, but not both.	145030	Computer Software	"C" or better	In Field Testing	Complete ODE courses 145030 and 145040 OR hold current Microsoft Client Operating System certification. New end-of-course exam score will be available in May 2019.		
			145040	Network Operating Systems	"C" or better	In Field Testing	Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.		
Microsoft Server Administrator	CTIT013 (3 Semester)		145040	Network Operating Systems	"C" or better	In Field Testing	Complete ODE course 145040 OR hold current Microsoft Server Certification. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.		
			145040	Network Operating Systems	"C" or better	In Field Testing	Complete ODE course 145040 OR hold one of the following current certifications: CompTIA Linux +, Linux Professional Institute Junior Exam, Red Hat Certified System Admin, or Novell Certified Linux Administration. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.		
Linux	CTIT016 (3 Semester)		145040	Network Operating Systems	"C" or better	In Field Testing	Complete ODE course 145040 OR hold one of the following current certifications: CompTIA Linux +, Linux Professional Institute Junior Exam, Red Hat Certified System Admin, or Novell Certified Linux Administration. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.		
			145040	Network Operating Systems	"C" or better	In Field Testing	Complete ODE course 145040 OR hold one of the following current certifications: CompTIA Linux +, Linux Professional Institute Junior Exam, Red Hat Certified System Admin, or Novell Certified Linux Administration. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.		

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Information Support Services/Network Systems	Operating System, Hardware Operation and Maintenance/A+	CTIT014 (3 Semester)		145030	Computer Software	"C" or better	In Field Testing	Complete ODE courses 145030 and 145025 OR hold the current CompTIA + certificate. New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.
				145025	Computer Hardware	"C" or better	In Field Testing	
Media Arts	Intro to Digital Media Arts and Media Design	CTMDA001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	340325	Digital Media Arts	"C" or better	49 or higher	N/A
	Intro to Audio Production	CTMDA002 (3 Semester)		340130	Audio Broadcasting	"C" or better	77 or higher	N/A
	Intro to Single Camera Video Production	CTMDA003 (3 Semester)		340145	Video Production	"C" or better	59 or higher	N/A
	Multi-Media Production for the Web	CTMDA004 (3 Semester)		340160	Multi-Media Web Production	"C" or better	53 or higher	N/A
Medical Assisting	Basic Administrative Functions	CTMAT004 (1 Semester)	Ohio Department of Education approved programs accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) or programs with documentation from the American Medical Technologist that completers are eligible for the RMA examination.	N/A	N/A	N/A	N/A	Certified Medical Assistant by the Certifying Board of the American Association of Medical Assistants (CMA-AAMA) or a Registered Medical Assistant by the American Medical Technologists (RMA-AMT).
	Perform Bookkeeping Functions	CTMAT005 (2 Semester)		N/A	N/A	N/A	N/A	
	Process Insurance Claims	CTMAT006 (3 Semester)		N/A	N/A	N/A	N/A	
	Fundamental Procedures	CTMAT008 (3 Semester)		N/A	N/A	N/A	N/A	
	Specimen Collection	CTMAT009 (2 Semester)		N/A	N/A	N/A	N/A	
	Diagnostic Testing	CTMAT010 (2 Semester)		N/A	N/A	N/A	N/A	
	Patient Care	CTMAT011 (5 Semester)	N/A	N/A	N/A	N/A		
Medical Management and Support	Medical Office Procedures	CTMMS001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	142015	Medical Office Management	"C" or better	67 or higher	N/A
Medical Terminology	Medical Terminology	CTMT001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	072150	Medical Terminology	"C" or better	61 or higher	N/A
Natural Resource Management	Environmental Science	CTNRM001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010720	Environmental Science for Agriculture and Natural Resources	"C" or better	59 or higher	N/A
	Field Botany	CTNRM002 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010710	Natural Resources	"C" or better	68 or higher	N/A
	Field Zoology	CTNRM003 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010745	Wildlife and Fisheries	"C" or better	65 or higher	N/A
Nursing	Practical Nursing	CTPNUR001 (30% of Nursing Technical Credit in the Associate Nursing Program)	Ohio Department of Education Adult Workforce Education approved and Ohio Board of Nursing approved PN program.	N/A	N/A	N/A	N/A	LPN License and Ohio Nursing Articulation Model (ONAM) Transition Course (Course equivalency credit will be given after completing an ONAM Transition Course at the institution). The receiving institution must visit Ohio Board of Nursing website at https://license.ohio.gov/lookup/ in order to verify LPN licenses.
OSHA Safety	10 Hour Safety	CTS001 (1 Semester)	N/A	N/A	N/A	N/A	N/A	Current and valid OSHA 10 Hour Safety Card.
Performing Arts	Stagecraft	CTPAT001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	340250	Stagecraft	"C" or better	66 or higher	N/A
	Dance Performance Practicum	CTPAT002 (1-3 Semester)		340220	Choreography	"C" or better	68 or higher	N/A

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						Course Grade	End-of-course exam score	Other Requirements
Pharmacy Technician	Introduction to Pharmacy Technician	CTPT001 (5 Semester)	Pharmacy program must contain 350 clock hours of instruction.	N/A	N/A	N/A	N/A	CTPT001 must contain at least 75 hours. Current and valid Pharmacy Technician Certification Board (PTCB) Certification is required.
	Pharmacy Concepts	CTPT002 (5 Semester)		N/A	N/A	N/A	N/A	CTPT002 must contain at least 75 hours. Current and valid Pharmacy Technician Certification Board (PTCB) Certification is required.
	Pharmacy Laboratory/Clinical Experience	CTPT003 (3 Semester)		N/A	N/A	N/A	N/A	CTPT003 must provide at least 225 clock hours of psychomotor experiences. Current and valid Pharmacy Technician Certification Board (PTCB) Certification is required.
Phlebotomy		CTP001 (3 Semester)	N/A	N/A	N/A	N/A	N/A	The American Society for Clinical Pathology (ASCP) phlebotomy credential is required. Eligibility for this credential is high school diploma and completion of a program approved by the National Accreditation Agency for Clinical Lab Sciences or high school diploma and completion of a course with 40 hours of didactic and 100 hours of clinical training. Based on ASCP requirements students must have "a minimum of 100 successful unaided blood collections including venipuncture's and skin punctures."
Programming	Computer Logic	CTPROG001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	145060	Computer Logic	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.
	Java Programming	CTPROG002 (3 Semester)		145065	Object Oriented Programming	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.
	C++ Programming	CTPROG003 (3 Semester)		145065	Object Oriented Programming	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement.
	Microsoft .Net Fundamentals	CTIT012 (3 Semester)		145070	Visual Programming	"C" or better	In Field Testing	New end-of-course exam score will be available in May 2019. Students that complete the course in school year 2018-19 or after will be required to meet the new exam score requirement, OR proof of successful completion of the MTA Exam 98-372 or current equivalent.
Renewable Energy	Introduction to Alternative and Renewable Energy	CTAE001/ORE001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	010715	Energy Systems Management	"C" or better	68 or higher	N/A
	Wind Energy	CTAE002/ORE005 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS. Secondary institution must choose to teach one of these courses, but not both.	010717	Solar and Wind Energy	"C" or better	52 or higher	N/A
	Solar Photovoltaic	CTSP001/ORE003 (3 Semester)		010717	Solar and Wind Energy	"C" or better	52 or higher	Students will not receive credit for the CTAN until they have completed the prerequisite requirement for College Algebra.
Supply Chain Management	Introduction to Supply Chain Management Technology	CTSCM001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	142025	Supply Chain Management Technology	"C" or better	73 or higher	N/A
	Logistics and Transportation	CTSCM002 (3 Semester)		142030	Logistics Management	"C" or better	65 or higher	N/A
	Purchasing, Sourcing, and Supplier Management	CTSCM003 (3 Semester)		142020	Operations Management	"C" or better	60 or higher	N/A

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						Course Grade	End-of-course exam score	Other Requirements
Visual Design and Imaging	Design and Typography Fundamentals	CTVDI001 (3 Semester)	Certificate of Affirmation can be used for course submission through CEMS.	340320	Digital Print Design	"C" or better	49 or higher	N/A
				OR				
	Fundamentals of Advertising and Communication	CTVDI002 (3 Semester)		340315	Visual Creation	"C" or better	52 or higher	
	Beginning Digital Image Editing	CTVDI003 (3 Semester)		340340	Advertising and Communications	"C" or better	44 or higher	N/A
	Fundamentals of Illustration and Layout	CTVDI004 (3 Semester)		340120	Digital Image Editing	"C" or better	44 or higher	N/A
				340330	Visual Distribution	"C" or better	38 or higher	N/A
Welding	Currently unavailable for submission. CTAG is under review.							