



Career and Technical Education

Rhode Island Career and Technical Education (CTE) Industry-Specific Program Standards

The following Standards are expected to be endorsed by the K-12 Council on Elementary and Secondary Education in the fall of 2023.

Reading the CTE Standards Template	6
Key Elements to the Standards Templates	6
US Dept. of Labor (USDOL) Career Cluster: Agriculture, Food, and Natural Resources	7
Animal Science Veterinary Assistant / Lab Animal Caretaker	8
Aquaculture / Agricultural and Food Science Technician	9
Bioscience	10
Plant Science – Landscaper & Groundskeeper	12
Process Technician (Chemical Manufacturing, Research & Development)	13
US Dept. of Labor (USDOL) Career Cluster: Architecture and Construction	15
CAD Operator	16
Construction Craft Laborer (Apprenticeship)	18
Construction Manager	20
Marine Trades - Boat Building	21
Marine Trades - Composites	22
Marine Trades - Systems	24
Junior Carpenter Helper	26
Residential Construction	28
Residential Pre-Apprentice Electrical	30
Residential Pre-Apprentice HVACR	33
Residential Pre-Apprentice Plumber	35
US Dept. of Labor (USDOL) Career Cluster: Arts, Audio/Video Technology, and Communications	37
Arts—Actor, Director, or Theatre	38
Education—Arts Educator – Visual / Music / Theater / Dance / Media	40
Arts/Design—Craft and Fine Artist	42
Arts—Dancer Choreographer	43
Musician	44

Media Communications.....	46
Arts & Multimedia Artist	48
US Dept. of Labor (USDOL) Career Cluster: Business Management and Administration	50
Accounting Clerk, Entry-Level Banking	51
US Dept. of Labor (USDOL) Career Cluster: Education and Training	53
Education (K-12 Education, Teacher Assistant)	54
US Dept. of Labor (USDOL) Career Cluster: Health Science	56
Certified Nursing Assistant (CNA)	57
Certified Patient Care Technician	59
Community Healthcare Worker	61
Dental Assistant	63
Emergency Medical Technician	65
US Dept. of Labor (USDOL) Career Cluster: Hospitality & Tourism	66
ACF Culinary Artist	67
Customer Service Representative / Event Planner	68
ProStart Culinary Artist and Foodservice Management.....	69
US Dept. of Labor (USDOL) Career Cluster: Information Technology	70
Audio/Video/Film Production	71
Networking (Cisco Certified Network Associate – CCNA)	73
Software Developer	76
Web Developer.....	79
Cybersecurity Specialist	82
Graphic Communications Technology – Advertising, Promotions, and Marketing	86
Graphic Communications Technology – Designer.....	88
Graphic Communications Technology—Print Manufacturing-Pre-Production.....	90
Graphic Communications Technology—Print Manufacturing-Production	92

Graphic Communications Technology - Digital Designer & Web-Print -Commerce	94
Information Technology Specialist.....	96
Music Technologist	99
Sound Engineering Technician	101
US Dept. of Labor (USDOL) Career Cluster: Law, Public Safety, Corrections, and Security	102
Firefighter	103
Law Enforcement & Corrections Officer	105
Military	107
Paralegal/Legal Assistant	109
US Dept. of Labor (USDOL) Career Cluster: Manufacturing	111
Electronics Technician.....	112
Entry-level Machinist (Option: Tool & Die Makers).....	114
Entry-level Manufacturing (Logistical Function).....	116
Entry-Level Machinist – Manufacturing - Defense (EB Partnership)	118
Maritime Electrical – Manufacturing - Defense (EB Partnership)	120
Pipefitting – Manufacturing - Defense (EB Partnership)	122
Sheet Metal Worker – Manufacturing - Defense (EB Partnership)	124
Technician Standard (Draft only).....	126
Welder – Entry Level – Manufacturing - Defense (EB Partnership)	128
US Dept. of Labor (USDOL) Career Cluster: Science, Technology, Engineering, and Mathematics (STEM)	130
Pre-Engineering	131
Entry-Level Computer Engineer.....	138
Entry-level Engineer Technologist.....	142
US Dept. of Labor (USDOL) Career Cluster: Transportation, Distribution, and Logistics	145
Automotive Body Repair Technician	146
Automotive Service Technician	148

Parts Specialist	150
Service Advisor	152
P-Tech Standards	154
Innovation (Newport)	155
Innovation (North Providence)	157
Innovation (PPSD)	159
Innovation (Westerly)	161
Innovation (Woonsocket)	163

Reading the CTE Standards Template

The **Rhode Island CTE Program Industry-Specific Standards** template was developed in Summer 2022 to streamline industry-backed standards for CTE programs across the state of Rhode Island. A standardized template will help to bring accountability, as well as clarity, to all CTE coursework, credentials, and career information for every CTE Program.

Key Elements to the Standards Templates

The image below will highlight some of the key elements we have included for all CTE Program Standards.

1. **Career Field** – Identifies the career field / program name within each standard.
2. **Career Cluster** – The career cluster for each standard – directly aligned with the [US Department of Labor's Career Clusters](#).
3. **CIP Code** – Classification of Instructional Programs created by the [National Center for Education Statistics](#).
4. **GWB Priority Sector** – Indicates whether this standard aligns to the [Governor's Workforce Board's](#) Priority Industry Sectors.
5. **Academic Requirements** – Links to all [graduation requirements](#) for all Rhode Island students, regardless of CTE status.
6. **Work-Based Learning Requirements** – All CTE programs require [80 hours of Work-Based Learning](#). Any variations or specific requirements will be listed in this box.
7. **Salary** – Links to Rhode Island [Department of Labor](#) salary expectations for the program field.
8. **Projected Job Outlook** – Links to Rhode Island Department of Labor future job [growth projections for the program field](#).

Rhode Island CTE Program Industry-Specific Standards			
Career Field		Career Cluster	
CIP Code		GWB Priority Sector	
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements.			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)			
Culminating CTE Credential(s)	1.		
<i>*Note: Include each credential bundle option on a separate line, if applicable</i>			
Work-based Learning	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
<i>*Note: Include specific WBL activities, if applicable</i>			
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)			
Skills & Knowledge for Entry Level:			
Occupations within this Standard:			
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

US Dept. of Labor (USDOL) Career Cluster:
Agriculture, Food, and Natural Resources

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Animal Science Veterinary Assistant / Lab Animal Caretaker	Career Cluster	Agriculture, Food, and Natural Resources
CIP Code	01.80__; 01.09__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Career Readiness Skills Component, such as: FFA LifeKnowledge; SkillsUSA Career Essential Suite		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One or more of the following: <ol style="list-style-type: none"> 1. RECOVER Basic Life Support 2. Canine and Feline CPR and First Aid Certification 3. Concurrent Enrollment in AVS-101 (URI) and OSHA-10 Certification		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)			
Skills & Knowledge for Entry Level:	Animal management, husbandry, and handling; Animal body systems, health, nutrition, genetics, and reproduction; Animal production systems; Companion animal care and management		
Occupations within this Standard:	Veterinary Technician; Veterinary Practice Manager; Veterinary Assistant; Laboratory Technician; Livestock Manager; Equine Manager; Zoologist; Wildlife Biologist; Agricultural Educator; Nutritionist; USDA Animal and Plant Health Inspection Services; Geneticist		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Aquaculture / Agricultural and Food Science Technician	Career Cluster	Agriculture, Food, and Natural Resources
CIP Code	01.10__; 01.11__; 01.12__	GWB Priority Sector	Yes
Academic Content			
Four years of Math (Minimum: Algebra II, Recommended Pre-Calculus and Statistics) + Three years of Science Recommended fourth year (Biology, Chemistry and Physical Science with recommended Advanced Placement Science) <i>ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements.</i>			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Three consecutive years of Environmental & Life Sciences Aquaculture Coursework Safety Training Component is Required Recommended: OSHA 10		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Precision Exam: Aquaculture 118 Or College Level Courses in Field of Study: EE: URI (AFS 201: Shellfish Aquaculture 4 credits Semester 1) Or EE: URI (AFS 202: Finfish Aquaculture 4 credits Semester 2)		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	SkillsUSA Career Essentials Suite		
Skills & Knowledge for Entry Level:	Possess the experience and background knowledge to assist in a variety of tasks such as tank maintenance, water chemistry testing (titration and meter), small plant and animal aquatic husbandry, prepare and operate laboratory testing equipment, maintain a safe and sterile laboratory environment, set up experiments, run experiments, record data and observations, compile, analyze and summarize results, diagnose technical flaws in equipment, as well as conduct repairs.		
Occupations within this Standard:	Chemical Technician; Agricultural Inspector; Food Scientist and Technologist; Soil and Plant Scientist; Animal Scientist; Agricultural Engineer; Biological Technician		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		

Related Teacher Certification		Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.	
Rhode Island CTE Program Industry-Specific Standards			
Career Field	Bioscience	Career Cluster	Agriculture, Food, and Natural Resources
CIP Code	41.01__; 51.10__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Mentoring program Career Readiness Skills Component such as: SkillsUSA Career Essentials Suite; Naviance; Junior Achievement Safety Training Component is Required (recommended: OSHA 10)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One or more of the following: 1. National Occupational Competency Testing Institute (NOCTI): Biotechnology 4075 2. Project Lead the Way (PLTW) Three Project Lead the Way Course Completion Certificates: Principles in Biomedical Science; Human Body Systems; Medical Interventions or Biomedical Innovation 3. Precision Exam #708 4. Concurrent enrollment in CMB 190: Issues in Biotechnology (URI) And OSHA-10		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)			
Skills & Knowledge for Entry Level:	-Demonstrate a well-developed "laboratory sense" regarding Safety Protocols (MSDS), ID and SDS data, FDA Regulations, cGMP, GLP, SOP writing, Sterile Gowning, Documentation, Basic Laboratory Instrumentation, QualityControl Functions in Microbiology and Chemistry, Record Keeping, Aseptic Handling, and Solution. -Have knowledge of Medical Terminology, Documentation, Basic Mathematics and		

	<p>Computer skills (i.e., Word Processing and Spreadsheet Analysis), Medical Testing Equipment Knowledge, Medical History and Review of Systems</p> <p>-Documentation Knowledge, Bloodborne Pathogens and Universal Precautions Knowledge).</p> <p>-Demonstrate Soft skills, including Interpersonal Communication, Teamwork and Collaboration, Critical Thinking, Conflict Resolution, Ethics, and Professional Demeanor.</p>
Occupations within this Standard:	<p>Medical Lab Technician, Pharmacy Technician, Chemical Technician, Biomedical Technician, Laboratory Technician, Instrumentation Technician, Medical Technologist, Biopharmaceutical Technician, Clinical Data Analyst, Equipment Technician, Research Technician / Assistant, Water Quality Analyst, etc.</p> <p>Biochemist, Bio-Informatician, Biophysicist, Biotechnology Laboratory Technician, Biological Technician, Biomedical Engineer, Chemical Engineer, Clinical Research Associate, Forensic Science Technician, Microbiologist, Pharmacologist, Quality Control, Research Scientist, Environmental Health and Safety Officer, Genetic Therapist, etc.</p>
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Plant Science – Landscaper & Groundskeeper	Career Cluster	Agriculture, Food, and Natural Resources
CIP Code	01.06__; 01.11__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Three - four consecutive years of Environmental & Life Sciences Coursework Career Readiness Skills Component such as: FFA LifeKnowledge; SkillsUSA Career EssentialsSuite		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: 1. National Occupational Competency Exam (NOCTI): #4949 Floriculture-Greenhouse 2. ICEV Exam: Floral Compliance Training-Pesticide Safety 3. RI DEM Applicator's License 4. Precision Exam: Greenhouse Management And 5. OSHA-10		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)			
Skills & Knowledge for Entry Level:	Identify plants used in the industry; Identify and demonstrate safe use of toolsExplain plant life cycles; Demonstrate methods of plant cultivation; Identify landscape pests and determine management strategies; Explain basic ecological cycles (nutrients, soil, and water); Possess professional workplace communication skills		
Occupations within this Standard:	Retail /Wholesale Nursery- Field manager; Greenhouse manager; Sales manager; Landscape/Garden Construction Retail; Wholesale Florist; Landscape Designer; Landscape Maintenance/Contractor; Masonry and Hardscape; Landscape lighting; Irrigation; Machine maintenance; Crew supervisor; Entomologist; Agronomist; Soil Scientist; Soil Conservationist; Landscape Architect; Agricultural Educator		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		

Related Teacher Certification		Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.	
Rhode Island CTE Program Industry-Specific Standards			
Career Field	Process Technician (Chemical Manufacturing, Research & Development)	Career Cluster	Agriculture, Food, and Natural Resources
CIP Code	41.00__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Career Readiness Skills Component, such as: FFA Life Knowledge SkillsUSA Career Essential Suite Naviance; Junior Achievement		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	<u>One or more of the following:</u> <ol style="list-style-type: none"> 1. Project Lead the Way (PLTW) Three Project Lead the Way Course Completion Certificate 2. College level courses in Field of Study: Concurrent/Dual Enrollment with CCRI 3. OSHA 10 <p>For individuals working in this pathway in the manufacturing component, National Center for Construction Education Research (NCCER):</p> <ol style="list-style-type: none"> 1. HVAC 2. Plumbing (Levels 1 & 2) 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Mechanical, plumbing and HVAC or engineering coursework		
Skills & Knowledge for Entry Level:			
Monitor chemical processes; Set up/ use and maintain chemical processing equipment and associate software platforms that may control them; Troubleshoot production problems and/or malfunctioning instruments; Prepare chemical solutions; Conduct chemical/biological physical experiments related to research and development;			

	Effectively use relevant technology/ instrumentation; Understand and follow Standard Operating Procedures (SOP); Practice Good Manufacturing Practices (GMP) and Good Lab Practices (GLP); Understand basic fluid mechanics and filtration; Work safely in a laboratory environment; Demonstrate analytical skills; Communicate effectively orally and in writing; Think critically; Interact with colleagues and team members appropriately; Observe and document processes; Effectively manage their time.
Occupations within this Standard:	Process Technician positions are found in several industries including pharmaceutical; environmental; food services/ manufacturing; plastics and chemical manufacturing; textile manufacturing; medical research and others.
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

US Dept. of Labor (USDOL) Career Cluster:
Architecture and Construction

Rhode Island CTE Program Industry-Specific Standards			
Career Field	CAD Operator	Career Cluster	Architecture and Construction
CIP Code	15.13__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three consecutive years of Drafting & Design coursework with documented portfolio products.		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following credentials: <ol style="list-style-type: none"> Precision Architectural Design 2 American Design Drafting Association (ADDA) Student Certification AND One of the following software certifications: <ol style="list-style-type: none"> Certified SOLIDWORKS Associate (CSWA) Autodesk Certified Associate (ex: AutoCAD, Civil 3D, Inventor, or Revit) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Curriculum: ADDA Curriculum certification process; Local curriculum reviewed by advisory board. An agreement with a Postsecondary institution - it is also recommended that an approved program utilizes the available curriculum provided by CAD software companies (i.e., Autodesk Design Academy, SOLIDWORKS curriculum) Postsecondary Partnerships: Recommended (Architecture and/or CAD Operator) agreement with Roger Williams, RISD, or NEIT and others as appropriate Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Mechanical and/or Architectural Content CTSO: SkillsUSA, DECA, FLBA Work-based learning: Internship, Industry Project, School-based Enterprise		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Design plans using computer-aided design (CAD) software; Work from rough sketches and specifications created by Engineers and Architects; Design products with engineering and manufacturing techniques; Add details to architectural plans from their knowledge of building techniques; Specify		

	dimensions, materials, and procedures for new products; Work under the supervision of engineers or architects, creating rough sketches and work from those created by Engineers and Architects
Occupations within this Standard:	CAD Operators; Architects; Civil Engineering Technicians; Industrial Designers; Surveying and Mapping Technicians; Mechanical Engineering Technicians; Landscape Architecture; Civil and Structural Technician; Mechanical and Electrical Technicians; Building and Materials fabricators
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Construction Craft Laborer (Apprenticeship)	Career Cluster	Architecture and Construction
CIP Code	46.00__ ; 46.99__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At least three consecutive years Construction Craft Laborers Framework; Safety: OSHA 30;</p> <p>Approved Curricula: Construction Craft Laborer Framework Curriculum from The Laborers International Union of North America (LIUNA) Training and Education Fund</p>		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> • Work Zone Safety Awareness certification • Scaffold User certification • CPR/First Aid Certification • Acceptance into: The New England Laborers Apprenticeship Training 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<p>Work-based learning experiences supported by: Local 271; Apprenticeship Coordinators and instructors for New England Laborers Training Academy</p>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<p>Curriculum: MC3 Credentials: Completion of MC3 Postsecondary Partnerships: New England Laborers Training Academy: Apprenticeship Program and Local 271 Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Computer-aided Design and Drafting (CADD) Work-based learning – Type and Description: Internship, Service Learning (community service projects sponsored by Local 271 and/or LIUNA), Industry Project (Industry -Lead instruction/projects through registered Apprenticeship program for LIUNA and/or Local 271), School-based Enterprise, Apprenticeship), School-based enterprise</p>		
Skills & Knowledge for Entry Level:	<p>Essential Skills: Problem Solving, professionalism, collaboration, critical thinking, communication, flexibility, and initiative; Orientation to the trades; Safety (OSHA 30); Heavy/Highway Construction skills related to: Asphalt work, grade setting, pipe work, traffic control, and site work.</p> <p>Building Construction skills related to: Concrete work, scaffolding, demolition work; Construction materials and methods; Related construction math and blueprint reading;</p>		

	Construction issues and resolutions; Technology specific equipment and basic operational techniques; Quality control
Occupations within this Standard:	<p>Heavy/Highway and Utility Industry: Asphalt Work, Grade Setter, Pipe Work, Traffic Control, Drilling/Blasting, Tunnel Work</p> <p>Building Industry: Concrete Work, Scaffolding Work, Masonry Work, Demolition Work</p> <p>Environmental Remediation Industry: Asbestos Abatement, Lead Abatement, Hazardous Waste Management, Radiation and Petro-Chemical Abatement</p> <p>Higher Education and/or Supervisor Training: Labor Foreman/Supervisor, Industry Training Instructor, Project Inspector, Certified Safety Professional, and Site Safety and Health Officer</p>
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Construction Manager	Career Cluster	Architecture and Construction
CIP Code	46.0412; 46.00__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> At least three consecutive years of Architecture and Construction <ul style="list-style-type: none"> HBI Core (units 1-5) HBI Carpentry (Unit 6) R Core Technology First Aid 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	OSHA 10 Construction and one of the following: <ol style="list-style-type: none"> HBI Core and HBI Carpentry Certificate AND International Residential Code (IRC) NCCER Certificate for Core Technology Construction Technology Specific NCCER Certification (Level 1) AND International Residential Code (IRC) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: NEIT (Articulation Agreement/HBI) and Roger Williams University -University College (Micro credential) Complementary Coursework: Technical Writing and Accounting CTSO: DECA, SkillsUSA Work-Based Learning: Internship, Service Learning, Industry Project (participation in RIBA Home show), School-based Enterprise		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Safety (OSHA 10); Related construction math and blueprint reading; Construction issues and resolutions; Construction materials and methods; Construction technology related drawings; Technology specific equipment and basic operational techniques; Quality Control		
Occupations within this Standard:	Architect; Architectural and Engineering Management; Landscape Architect; Civil Engineer; Regional and Urban Planner/Designer; Safety Director; Specification Writer; Cost Estimator		
Salary Information:	RI DLT Employment & Wages by Industry		

Projected Job Outlook:		RI DLT Occupational Projections	
Related Teacher Certification		Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.	
Rhode Island CTE Program Industry-Specific Standards			
Career Field	Marine Trades - Boat Building	Career Cluster	Architecture and Construction
CIP Code	47.0616	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Marine Trades I: Introduction to Boatbuilding Marine Trades II: Advanced Boat Building Marine Trades III: Systems and Repair Primary curriculum is American Boat and Yacht Council (ABYC) with integrated units from the NCCER Construction Technology.		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Rhode Island Marine Trades Association (RIMTA) Certificate of Completion. AND one of the following: 1. OSHA-10 Maritime 2. OSHA 10 Construction		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Partnerships: Rhode Island Marine Trades Association, Safe Harbors, New England Institute of Technology, IYRS School of Technology & Trade, City Sail Inc., and In Command Seamanship Training CTSO: SPATE through NEIT Credential: Safe boating licenses & boat handling training; Preferred admission at IYRS; Credit towards Safe Harbors Apprenticeship Program		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the Marine Trades; OSHA 10 Safety (Maritime, Construction and/or General); Basic Woodworking and mechanical skills; boatbuilding terminology, materials and methods; Related industry math and boat plans and/or blueprint reading; Technology specific equipment and basic operational techniques; Quality control		
Occupations within this Standard:	Boat Builder; Rigger; Manager of Boatbuilding Facility; Marine Carpentry		

Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Marine Trades - Composites	Career Cluster	Architecture and Construction
CIP Code	15.06__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> Marine Trades I: Introduction to Composites Marine Trades II: Composite Boat Building and Repair Marine Trades III: Advanced Composites <p>The primary curriculum is American Composite Manufacturers Association (ACMA).</p>		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>American Composite Manufacturers Association (ACMA) Certification - Certified Composites Technician (CCT)</p> <p>OR</p> <p>RIMTA Certificate of Completion AND OSHA 10 Construction (or OSHA 10 Maritime)</p>		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<p>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</p>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	CTSO: SkillsUSA Credential: OSHA 10 Certificate		
Skills & Knowledge for Entry Level:	<p>Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the Composite Applications & Processes; OSHA 10 Safety ((Maritime, Construction and/or General)); Composite terminology, materials and methods; Related industry math and blueprint reading</p> <p>Strong analytical and problem-solving skills; Technology specific equipment and basic operational techniques; General skills with hand tools, such as grinders, jig saw, and sanders; Quality control; Strong organizational and time management skills</p>		

Occupations within this Standard:	Composite Technician; Production Technician
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Marine Trades - Systems	Career Cluster	Architecture and Construction
CIP Code	47.0616; 15.0806	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> • Marine Trades 1-Intro to Basic Marine Engine Operation, Intro to Marine Systems, Intro to Marine Electricity. • Marine Trades 2-Marine Two and Four Stroke Engine Operation, Marine Systems Trouble Shooting, Intro to Marine Electrical Wiring. • Marine Trades 3-Marine Inboard Gasoline and Diesel Engine Theory, Marine Engine Drive Systems, Advanced Systems Repair, Advanced Electrical Repair. 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: <ol style="list-style-type: none"> 1. OSHA 10 General 2. OSHA 10 Construction AND One of the following: <ol style="list-style-type: none"> 1. RI Marine Trades Association (RIMTA) Certificate 2. Maritime Certification 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Rhode Island Marine Trades Association, New England Institute of Technology, Marine Mechanics Institute-UTI, International Yacht Restoration School-IYRS, Safe Harbor Marinas. CTSO: SkillsUSA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to onboard Electrical, plumbing and propulsion systems; Systems terminology, materials and methods; Related industry math and schematics reading; Technology specific equipment and basic; operational techniques; Quality control
Occupations within this Standard:	Marine Technician; Marine Engineer; Marine Mechanic
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Junior Carpenter Helper	Career Cluster	Architecture and Construction
CIP Code	46.02__	GWB Priority Sector	Yes
Academic Content			
At least three years of science, including Chemistry			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three consecutive years of Architecture and Construction (including at least one of the following): <ul style="list-style-type: none"> ○ NCCER Core Technology ○ National Center for Construction Education Research (NCCER) ○ New England Carpenters Training Fund (NECTF) ○ HBI (Unit 1-5) and HBI (Unit 6) Carpentry 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Complete one of the following sets of credential choices: <ol style="list-style-type: none"> 1. OSHA 10 AND NECTF Level 1, 2, and 3 (Equaling first year Carpenters union apprenticeship) 2. NCCER Certificate for Core Technology (mandatory) AND Construction Specific NCCER Certification (Level 1 and 2) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: New England Institute of Technology Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Accounting 1, Technical Writing CTSO: Skills USA, DECA Work-based learning – Type and Description: Internship, Service Learning (Service projects in the community), Industry Project (participation in RIBA home show industry – lead instruction/projects, School-based Enterprise (WBL Example: Build a shed for a local elementary school), Apprenticeship		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Safety (OSHA 10); Related construction math and blueprint reading; Construction issues and resolutions; Construction materials and methods; Construction technology related drawings; Technology specific equipment and basic operational techniques; Quality Control Internships
Occupations within this Standard:	Industrial Engineer; Interior Designer; Landscape Architect; Materials Engineer; Mechanical Engineer; Professional Carpenter; Regional and Urban Planner/Designer; Safety Director; Specification Writer; Structural Engineer; Surveying and Mapping Technician
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Residential Construction	Career Cluster	Architecture and Construction
CIP Code	46.00__ ; 46.04__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least three consecutive years of Construction Technology: <ul style="list-style-type: none"> • HBI (Home Builders Institute) (Unit 1-5) and • Carpentry (Unit 6) OR National Center for Construction Education Research (NCCER)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	All of the following: <ol style="list-style-type: none"> 1. OSHA 10 2. HBI certificate (Unit 1-5) (mandatory) 3. Construction Technology specific HBI (Unit 6) certification. 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Credential: International Residential Code (IRC) Postsecondary Partnerships: Articulation with CCRI, New England Institute of Technology Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Geometry CTSO: Skills USA, DECA Work-based learning – Type and Description: Internship, Service Learning, Industry project (participation in RIBA home show), School Based Enterprise		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Safety (OSHA 10); Related construction math and blueprint reading; Construction practices and resolutions; Construction materials and methods; Construction technology; related drawings; Technology specific equipment and basic operational techniques; Quality control; Internship
Occupations within this Standard:	Industrial Engineer; Professional Carpenter; Interior Designer; Landscape Architect; Materials Engineer; Mechanical Engineer; Regional and Urban Planner/ Designer; Safety Director; Specification Writer; Structural Engineer; Surveying and Mapping Technician
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Residential Pre-Apprentice Electrical	Career Cluster	Architecture and Construction
CIP Code	46.0302	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> HBI (Units 1-5) and HBI (Unit 7) <p>OR</p> <ul style="list-style-type: none"> NCCER Core Levels1 and Level 2 <p>OR</p> <ul style="list-style-type: none"> MC-3 First Aid Courses 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	OSHA 10 AND Earned At Least One: <ol style="list-style-type: none"> Home Builders Institute (HBI) NCCER (Core) Dual/Concurrent Enrollment Precision Exams 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Recommended Curriculum: HBI; NCCER Core Curriculum; MC-3 Postsecondary Partnerships: Mass Bay CC - New England Institute of Technology - Central Maine CC. - UTI- MTI – UNOH Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Pre-Calculus CTSO: SkillsUSA, DECA, FLBA Work-based learning – Type and Description: Internship, Service Learning, Industry Project (Participation in RIBA home show), School-based Enterprise		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Materials and methods; Construction technology related drawings; Technology specific equipment and basic operational techniques; Quality control; Human relations; Communication skills; Writing skills
Occupations within this Standard:	Aircraft and Avionics Equipment Mechanics and Technicians; Drafters; Electrical and Electronics Engineering Technicians; Electrical and Electronics Engineers; Electrical and Electronics Installers and Repairers; Elevator Installers and Repairers; Heating, Air Conditioning, and Refrigeration Mechanics and Installers; Line Installers and Repairers; Power Plant Operators, Distributors, and Dispatchers; Solar Photovoltaic Installers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Residential Pre-Apprentice HVACR	Career Cluster	Architecture and Construction
CIP Code	47.0201	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least three consecutive years of Heating Ventilation, Air Conditioning, & Refrigeration <ul style="list-style-type: none"> • NCCER Core Technology Level 1 • NCCER Core Technology Level 2 • HBI certificate for Units 1-5 (mandatory) and Electrical (Unit 6) • First Aid Coursework 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	OSHA 10 Construction AND HBI certificate for Units 1-5 (mandatory) and Unit #14 HVAC		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: New England Institute of Technology Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): NCCER Core Technology Required: Level 3 and 4, Pre-Calculus CTSO: Skills USA Work-based learning – Type and Description: Internship, Service Learning (projects in the community), Industry Project (Participation in RIBA home show), School-based Enterprise, Apprenticeship		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Safety (OSHA 10); Related construction math and blueprint reading; Construction issues and resolutions; Construction materials and methods; Construction technology related drawings; Technology specific equipment and basic operational techniques; Quality control; Internship; Human relations and problem solving
Occupations within this Standard:	HVAC/R Mechanics and Installers; Boilermakers; Plumbers, Pipefitters, and Steamfitters; Sheet Metal Workers; Solar Photovoltaic Installers; Stationary Engineers and Boiler Operators; Wind Turbine Technicians
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Residential Pre-Apprentice Plumber	Career Cluster	Architecture and Construction
CIP Code	46.05__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least three consecutive years of Plumbing Coursework <ul style="list-style-type: none"> • HBI (Units 1-5) (mandatory) and (Unit 8) • NCCER Core Plumbing Level 1 & 2 • First Aid Coursework 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	OSHA 10 AND Earned At Least One: <ol style="list-style-type: none"> 1. HBI certificate (Units 1-5) and (Unit 8) specific HBI certification. 2. NCCER Core Level 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Complementary Coursework: NCCER Core Plumbing Level 3 & 4 CTSO: Skills USA Work-based learning – Type and Description: Internship, Service Learning (projects in the community), Industry Project (Participation in RIBA home show), School-based Enterprise, Apprenticeship		

Skills & Knowledge for Entry Level:	Essential Skills: Problem Solving, professionalism, collaboration, critical thinking, communication, flexibility, and initiative; Orientation to the trades; Safety (OSHA 30); Heavy/Highway Construction skills related to: Asphalt work, grade setting, pipe work, traffic control, and site work; Building Construction skills related to: Concrete work, scaffolding, demolition work; Construction materials and methods; Related construction math and blueprint reading; Construction issues and resolutions; Technology specific equipment and basic operational techniques; Quality control
Occupations within this Standard:	Heavy/Highway and Utility; Industry: Asphalt Work, Grade Setter, Pipe Work, Traffic Control, Drilling/Blasting, Tunnel Work; Building Industry: Concrete Work, Scaffolding Work, Masonry Work, Demolition Work; Environmental Remediation Industry: Asbestos Abatement, Lead Abatement, Hazardous Waste Management, Radiation and Petro-Chemical Abatement. Higher Education and/or Supervisor Training: Labor Foreman/Supervisor, Industry Training Instructor, Project Inspector, Certified Safety Professional, and Site Safety and Health Officer
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

US Dept. of Labor (USDOL) Career Cluster:
Arts, Audio/Video Technology, and Communications

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Arts—Actor, Director, or Theatre	Career Cluster	Arts/AV Technology & Communications
CIP Code	50.05__	GWB Priority Sector	No
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential theatre arts coursework (Specialized -optional Year 3)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: 1. RI State Council on the Arts Credential - Theatre 2. Adobe Certification 3. Postsecondary credit in this cluster (RIC-EEP) – CCRI 2204/2205 4. NOCTI 1107 5. NOCTI 1108 6. YouScience – Film Photography		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA; ELA-Public speaking/speech, Foreign Languages: Italian, French, German (preferred), Greek and Roman history		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative ; Orientation to the theatre; Safety (OSHA 10); Knowledge of artistic and technical theatre; Participation in small and large company stage performances; Knowledge of stage-performance (theatre company, acting ,stage craft)		
Occupations within this Standard:	Actor ; Director ; Musician/Singer ; Composer/Arranger ; Church Musician ; Accompanist ; Playwright ; Theatre/Acting Entrepreneur		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Education—Arts Educator – Visual / Music / Theater / Dance / Media	Career Cluster	Arts/AV Technology & Communications
CIP Code	50.01__	GWB Priority Sector	No
Academic Content			
National Arts Standards: Click here for National Arts Standards			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Visual/Music/Theater/Dance/Media Arts Courses		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the Following (by content area): <ol style="list-style-type: none"> Visual Arts/Media Arts <ol style="list-style-type: none"> RI State Council on the Arts Credential- Visual Arts Adobe Certification AP Credit in 2-D Design or Drawing Music <ol style="list-style-type: none"> AP Music Theory Exam Theatre <ol style="list-style-type: none"> RI State Council on the Arts Credential-Theatre Dance <ol style="list-style-type: none"> RI State Council on the Arts Credential-Dance YouScience - Digital Audio 1/2 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA; Art History; AP Art History		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Demonstrate their skill and talent through a portfolio of work; Exhibit creativity through unique visual problem solving; Display their work through traditional methods and a web- portfolio; Possess customer service/interpersonal skills; Utilize a variety of materials such as pencil, charcoal, collage, paint and print-making; Be prepared for a highly competitive environment.
Occupations within this Standard:	Junior Art Director; Art Director; Art Historian/Archivist; Museum/Gallery Curator; Museum Education Director; Visual Arts Educator; Art Therapist; Music, Theater, Arts, Dance Educator; College Professor
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Arts/Design—Craft and Fine Artist	Career Cluster	Arts/AV Technology & Communications
CIP Code	50.07__	GWB Priority Sector	No
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Craft & Fine Artist Courses		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	One of the Following: 1. RI State Council on the Arts Credential 2. Adobe Certification 3. Postsecondary credit in this cluster (RIC-EEP) – ART 200s 5. AP Credit in 2-D Design or Drawing		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	World Languages; Art History, AP Art History; SkillsUSA; Adobe Certification;		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Demonstrate their skill and talent through a portfolio of work; Exhibit creativity through unique visual problem solving; Display their work through traditional methods and a web- portfolio; Possess customer service/interpersonal skills; Utilize a variety of materials such as pencil, charcoal, collage, paint and print-making; Be prepared for a highly competitive environment.		
Occupations within this Standard:	Junior Art Director; Set Designer; Art Director; Industrial Designer; Illustrator; Jewelry/Metal Worker; Woodworker; Fashion Designer; Museum/Gallery Curator		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Arts—Dancer Choreographer	Career Cluster	Arts/AV Technology & Communications
CIP Code	50.03__	GWB Priority Sector	No
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Dance Curriculum (meeting NCAS Proficient Level – Minimum): IE technique, choreography and composition, dance history, anatomy (kinesiology), injury prevention, dance analysis and critique, pedagogy, production		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: 1. RI State Council on the Arts Credential – Dance 2. Post-Secondary credit in this Career Cluster – RIC DANCE 309		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA; National Honor Society for Dance Additional Courses may include arts management (back and front of the house), costume (set, lighting) design and construction / implementation, and/or 3 pre-AP Arts Dance Units		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Demonstrate their skill and talent through a portfolio of work; Exhibit creativity; Meet the minimum of Proficient Level in the National Core Arts; Standards for Dance; Be prepared for a highly competitive environment.		
Occupations within this Standard:	Dancers Choreographers; Entertainers and performers Sports and related workers; Teaching Artist; Postsecondary Teachers; Public Education Dance Teacher; Studio owner Teachers; Producers and Directors		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Musician	Career Cluster	Arts/AV Technology & Communications
CIP Code	50.09__	GWB Priority Sector	No
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Core music performance class (IE: Band, Chorus, Orchestra)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: 1. Bose certification 2. AP Music Theory Exam 3. Post-Secondary credit in Career Cluster - RIC Music 2		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Private Lessons strongly recommended AP/EEP Music Theory EEP Music History; Foreign Languages- Italian, French, German preferred (Voice) ; Music Technology; Piano (Vocalists) Recommended extra-curricular activities: All State, Solo & Ensemble Festival, Community and church ensembles and Chamber Music, Jazz Band, Musical Theater, Rock Band, etc.		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication Creativity; Flexibility; Initiative; Performance proficiency on primary instrument or voice performance proficiency; Performance proficiency in a large performing ensemble (band, chorus, orchestra); Knowledge of musical history and literature; Knowledge of music theory, sight singing, ear training, and rhythmic training
Occupations within this Standard:	High School Diploma Musician in Rhode Island National Guard and other branches of the service ; Composer/Arranger ; General Business musician ; Music Directors and Composers ; Musicians and Singers ; Post-Secondary Teachers High School, ; Middle School and Kindergarten and Elementary School Teachers ; Music Entrepreneur ; Arts Management ; Conductor ; Music Therapist ; Private Music Teacher
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Media Communications	Career Cluster	Arts/AV Technology & Communications
CIP Code	10.01__; 10.02__; 10.03__	GWB Priority Sector	No
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Media Communications/Visual Arts coursework (Specialized -optional Year 3)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Earn at least one of the following: <ol style="list-style-type: none"> 1. (NOCTI) Broadcasting and Journalism Pathway Assessment; 1106 2. YouScience (formerly Precision Exam) 21st Century Success Skills 3. Adobe premiere certification 4. Final Cut Pro certification 5. Sony Vegas/SoundForge certification 6. Comportable video editing certification 7. Post-secondary Credit in Career Cluster 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA; Optional Credentials: Adobe Premiere, Final Cut Pro, Sony Vegas/SoundForge, Comparable video editing program		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Apply effective and collaborative team communication and management skills; Complete the video/writing process from pre-production script/story development through the production and capture of quality video image and audio and collection of information through various forms of media.
Occupations within this Standard:	Motion Picture and Video Industries; Promoters of Performing Arts, Sports, and Similar Events; Radio and Television Broadcasting; Independent Artists, Writers, and Performers; Performing Arts Companies
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Arts & Multimedia Artist	Career Cluster	Arts/AV Technology & Communications
CIP Code	50.04__	GWB Priority Sector	No
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Media Communications/Visual Arts coursework (Specialized -optional Year 3)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the Following: <ol style="list-style-type: none"> 1. PrintED 2. Adobe Certification 3. Post Secondary Credit in Career Cluster GRC 176 – Photoshop 1 (CMCC), Art 2 - EEP - RIC, AP 2-D Art and Design 4. NOCTI Visual Communications and Interactive Media Design 5. YouScience (formerly Precision Exam) Digital Print Design 6. RI State Council on the Arts Credential - Visual Arts 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA Optional Credential: Adobe Certification		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Work with a team of artists, copywriters, designers, stylists, executives etc. to create multimedia designs; Work with a wide range of media and use graphic design software; Think creatively and develop new design concepts, graphics and layouts; Research projects to help create realistic and innovative designs based upon the client's needs; Prepare, present, amend, and edit designs based on client feedback and specifications within required timelines
Occupations within this Standard:	Illustrator; Animator; Video Game Designer; Fashion Designer; Art Director; Web Developer; Film Director; Producer
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

US Dept. of Labor (USDOL) Career Cluster:
Business Management and Administration

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Accounting Clerk, Entry-Level Banking	Career Cluster	Business Management and Administration
CIP Code	52.03__; 52.08	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> 3 consecutive full year (1.0 credits) of expected industry coursework (e.g., Finance, Entrepreneurship, Business Management, etc.) Microsoft Office Training (Excel and Word prioritized) Financial Literacy Requirements in accordance with RIDE guidelines 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	At least two of the #'s 1-7 OR one of the #'s 1-7 AND #8: <ol style="list-style-type: none"> NOCTI Certification: Any related exam from the Business Management & Administration or Finance clusters NAFTrack Certification Precision Exams: Any related exam from the Business Management & Administration or Finance clusters Certiport: Any Microsoft certification (Preferred) Microsoft Office Digital Badging (Excel and/or Word Preferred) NRF Customer Service Certification or any business-related NRF certification QuickBooks Certification <hr/> <ol style="list-style-type: none"> Professional Licensure by a 3rd party entity or a minimum of one transcribed postsecondary credit: (CCRI: Business 1010: Introduction to Business (Spring Semester) or Business 2060: Principles of Marketing (Fall Semester) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Community College of Rhode Island, Rhode Island College, University of Rhode Island Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): ELA – URI Writing, Math – Pre-Calculus, Accounting CTSO: DECA, SkillsUSA, FBLA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Data Analytics
Occupations within this Standard:	Entry-Level Banking; Accounting Clerk; Postsecondary Business Pathway
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

US Dept. of Labor (USDOL) Career Cluster:
Education and Training

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Education (K-12 Education, Teacher Assistant)	Career Cluster	Education and Training
CIP Code	13.01__; 13.15__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Minimum of three consecutive years of coursework in Education Pathway from birth to 21 with embedded content in Multi Language Learners (MLL) and children with special needs. The three sequential courses must include units on the following topics:</p> <ul style="list-style-type: none"> • Safety • Human Growth and Development • Learning Environment • Cultural Competence • Fairness, equity, and diversity • Understanding the needs of diverse learners: MLLs and students with special needs • Planning instruction • Building content knowledge • Instructional practice • Assessing teaching and learning • Observation and field experience 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> • First Aid, CPR & AED <p>AND ONE OF THE FOLLOWING TWO OPTIONS:</p> <ul style="list-style-type: none"> • Passing score on the RI ParaPro Exam OR • RIELDS Guidance Principles Certificate + RIELS 9 Domain Certificate 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 WBL hours in a service learning or school based enterprise setting or internship.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<ul style="list-style-type: none"> • Completion of a Teacher Assistant training program • Internships in K-12 education setting should be with a certified and tenured teacher • Certificate: Red Cross Babysitting and Childcare certificate • Recommended coursework in Psychology and Sociology • Ed Rising chapter or equivalent <p>Note: Early Childhood placement should be in a center with Bright Starts affiliation.</p>		

Skills & Knowledge for Entry Level:	<p>Communication</p> <p>Interpersonal Patience</p> <p>Resourcefulness</p> <p>Professional Skills</p>
Occupations within this Standard:	Teacher; Early Childhood Teacher, Teacher Assistant, Related Services
Salary Information:	<p>RI DLT Employment & Wages by Industry</p> <p>RI DLT Employment & Wages by Industry</p> <p>Educational Services average annual wage= \$60,042</p> <p>RI DLT Occupational Projections</p> <p>Education, Training and Library Occupations</p> <p>2020 average employment= 31,400</p> <p>2030 projected employment= 33,804</p>
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<p><i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i></p> <p>Any General Educator Certification: Early Childhood, Elementary, Middle Grades, Secondary or All Grades</p>

US Dept. of Labor (USDOL) Career Cluster:
Health Science

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Certified Nursing Assistant (CNA)	Career Cluster	Health Science
CIP Code	51.39__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> • Foundations of Healthcare Professions • Theory and Practical Nursing Assistant Skills • Collecting and Testing Specimens; (Optional: Theory and Practical Phlebotomy) AND • 40 additional hours (minimum) of off-site clinical training 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> • Rhode Island Nursing Assistant License 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	40 hours of clinical internship required		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Coursework: Anatomy & Physiology CTSO: SkillsUSA; HOSA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative Assist patients/residents with Activities of Daily Living (ADLs) including personal hygiene, dressing and grooming, nutrition and hydrations, elimination, rest/sleep/comfort; Perform basic nursing skills including, following infection control and safety/emergency procedures/practices, therapeutic/technical procedures, data collection and reporting; Assist patients/residents with restorative care skills; Assist patients/residents with emotional and Mental Health needs; Communicate with medical personal and patients; Abide by client's rights, legal and ethical behaviors; Be an active member of the healthcare team; Provide care that meets spiritual and cultural needs.
Occupations within this Standard:	Certified Nursing Assistant; Medical Assistant; Health Unit Coordinator/Unit Clerk; Patient Care Assistant; Patient Care Technician; Surgical Technologist; Emergency Medical Responder; Emergency Medical Technician; EKG Technician; Registered Nurse; Respiratory Therapist; Radiology Technician; Paramedic; EMT; Sonography Technician; Registered Nurse; Nurse Educator; Health Care Administrator; Nursing Home Administrator
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Certified Patient Care Technician	Career Cluster	Health Science
CIP Code	51.3902	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> Foundations of Healthcare Professions Theory and Practical Patient Care Technician Skills CPCT Five (5) Required Domains: <ol style="list-style-type: none"> Domain 1: General Patient Care (45%) Domain 2: Compliance, Safety, and Professional Responsibilities (20%) Domain 3: Infection Control (11%) Domain 4: Phlebotomy (includes specimen collection as well) (14%) Domain 5: Electrocardiograms (EKG) (10%) 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	1. National Health Career Association (NHA) Certified Patient Care Technician Provisional License (See specific required modules below under Required Curriculum)		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Coursework: Anatomy & Physiology Postsecondary Partnerships: CCRI CTSO: SkillsUSA; HOSA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Respond to patient calls and requests; Assist patients with personal hygiene tasks; Tidy patients' rooms; Serve meals and feed patients; Monitor vital signs; Draw laboratory specimens; Perform EKGs and other clinical tasks; Set up equipment; Assist the physician or nurse with therapies
Occupations within this Standard:	Certified Nursing Assistant; Medical Assistant; Health Unit Coordinator/Unit Clerk; Patient Care Assistant; Patient Care Technician; Surgical Technologist; Emergency Medical Responder; Emergency Medical Technician; EKG Technician; Registered Nurse; EKG Technician; Respiratory Therapist; Radiology Technician; Paramedic; EMT; Sonography Technician; Registered Nurse; Nurse Educator; Health Care Administrator; Nursing Home Administrator
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Community Healthcare Worker	Career Cluster	Health Science
CIP Code	51.2208; 51.2213; 51.22__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> Foundations of Healthcare Professions Essential Healthcare Practices Patient Navigation (in addition to Internship) <p>District Curriculum must include competency in nine domains of CHW:</p> <ol style="list-style-type: none"> Engagement Methods and Strategies Individual and Community Assessment Culturally and Linguistically Appropriate Responsiveness Promote Health and Well-Being Care Coordination and System Navigation Public Health Concepts and Approaches Advocacy and Community Capacity Building Safety and Self-Care Ethical Responsibilities and Professional Skills Upon graduation, students are required to enroll in a CHW Certification Program (Must be 18) 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> Precision Exam - Foundations of Healthcare Professions OR NOCTI Health Assisting CPR/First Aid Certification <p>Choose from following providers:</p> <ol style="list-style-type: none"> American Heart Association (AHA) Basic Life Support for Healthcare Providers (BLS) American Red Cross (ARC) First Aid Infant-Child-Adult National Consortium for Health Science Education (NCHSE) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	50 Clinical Hours Required		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Post-Secondary Partnerships: CCRI Coursework: Public Speaking; Spanish or Portuguese; Psychology; Human Anatomy; First Aid & CPR; Sign Language; Student to begin work on CHW Portfolio		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Public Speaking; Learn about roles and responsibilities of a CHW; Engage clients in ways that establish trust and rapport with them and their families; Engage in cultural competency; Identify language access and healthcare access for clients and their families; Identify and document needs and health topics relevant to the priority population; Be familiar with health literacy and medical terminology; Adapt outreach strategies based on population, venue, behavior or identified risks that are appropriate to a given population and its self-determined concerns; Identify basic geographic and structural features that define, support and inhibit outreach in the community; Create a non-judgmental atmosphere in interactions with clients and their families; Identify personal safety issues and possible responses to potentially dangerous situations; Document and help create networks and establish partnerships and linkages with other community health; workers and organizations for the purpose of care coordination and enhancing resources.
Occupations within this Standard:	<p>Occupations Requiring Less than Baccalaureate Degree: Community Health Worker; Medical Assistant; Social and Human Service Assistant; Medical Translator; EMT/Paramedic; Health Information; Coder; Home Health Aide; Lab Technician; Phlebotomist</p> <p>Occupations Requiring Baccalaureate Degree: Social Worker; Public Health Educator; Radiographer; Registered Nurse; Athletic Trainer; Industrial Hygienist; Nutritionist; Occupational Therapist; Physician's Assistant; Psychologist; Radiologist; Research Scientist; Speech/Language Pathologist; Toxicologist</p>
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Dental Assistant	Career Cluster	Health Science
CIP Code	51.06__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ol style="list-style-type: none"> 1. Foundations of Dental Professions; BLS for Healthcare Providers 2. Infection Control (Related to Dental Training) 3. Radiation Training (See below for Clinical Training) 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> • BLS for Healthcare Providers • RIDOH State Radiography Certification 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Curriculum: Radiation Health and Safety Theory Postsecondary Partnerships: CCRI - Students are only allowed to take this course of study at a Commission of Dental Association (CODA) Accredited school. CODA does not certify secondary schools, educators must be from a CODA school CTSO: SkillsUSA; HOSA Textbooks: Modern Dental Assisting and The Administrative Dental Assistant -High School Teachers can teach BLS -CCRI Dent 1000 must be taught by a CCRI Instructor in order to have DENT 1000 transfer (Must be taught by RDH)		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Orientation to the trades; Ensure that patients are comfortable in the dental chair; Prepare patients and the work area for treatments and procedures; Sterilize dental instruments; Hand instruments to dentists during procedures; Dry patients' mouths using suction hoses and other equipment; Instruct patients in proper oral hygiene; Produce dental images and complete lab tasks, under the direction of a dentist; Keep records of dental treatments; Schedule patient appointments; Work with patients on billing and payment		
Occupations within this Standard:	Certified dental assistants; Expanded functions dental assistants; Orthodontic assistants; Registered dental assistants; Surgical dental assistants		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Emergency Medical Technician	Career Cluster	Health Science
CIP Code	51.0810; 51.0904	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least 3 years of sequential coursework in Health Careers AND EMT curriculum from an accredited provider (must include 180 hours of instruction)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	National Emergency Medical Technician Certification (Must be 18) Once a student passes the national exam, they may apply for RI EMT License		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Curriculum: National Standard Curriculum for EMT Postsecondary Partnerships: CCRI Coursework: Anatomy & Physiology; Sociology; Psychology Optional Credentials: CPR/First Aid; RI EMT License		
Skills & Knowledge for Entry Level:	Respond to 911 calls for emergency medical assistance, such as cardiopulmonary resuscitation (CPR) or bandaging a wound; Assess a patient's condition and determine a course of treatment; Provide first-aid treatment or life support care to sick or injured patients; Transport patients safely in an ambulance; Transfer patients to the emergency department of a hospital or other healthcare facility; Report their observations and treatment to physicians, nurses, or other healthcare facility staff; Document medical care given to patients; Inventory, replace, and clean supplies and equipment after use		
Occupations within this Standard:	Paramedic; Firefighter; Medical Assistant; Physician's Assistant; Police Officer; Nurse; Emergency Management Officer		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

US Dept. of Labor (USDOL) Career Cluster:
Hospitality & Tourism

Rhode Island CTE Program Industry-Specific Standards			
Career Field	ACF Culinary Artist	Career Cluster	Hospitality & Tourism
CIP Code	12.05__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three consecutive full years of Culinary Arts coursework. Required Curriculum: <ul style="list-style-type: none"> • ProStart - National Restaurant Association • American Culinary Federation (ACF) Accreditation • Culinary Fundamentals by The American Culinary Federation 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Culinary Arts Cook NOCTI – ACF AND Servsafe Manager Certification		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: A concurrent partnership with Johnson & Wales or a local post-secondary institution is recommended CTSO: SkillsUSA, DECA, FLBA		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Quality control; Customer Service; Food Safety Management Proper food storage and handling techniques; Cost Control; Culinary Techniques; Purchasing and inventory; Marketing and the menu; Knowledge of raw materials; Techniques for maximizing the effective manufacture and distribution of goods; Accountability; Dependability and presentation		
Occupations within this Standard:	Line Cook; Prep Cook; Chefs; Head Cooks; Bakers; Food Service Managers; Barista		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Customer Service Representative / Event Planner	Career Cluster	Hospitality & Tourism
CIP Code	52.0907	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three consecutive full years of Hospitality & Event Planning courses		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> Level 1 Certified Hospitality & Tourism Management Professional Certification Level 2 Certified Hospitality & Tourism Management Professional Certification AND <ul style="list-style-type: none"> Certified Guest Service Professional (CGSP) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: A concurrent partnership with Johnson & Wales or a local post-secondary institution is recommended Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Customer Service, Event Management & Public Speaking CTSO: SkillsUSA, DECA, FLBA		
Skills & Knowledge for Entry Level:	Customer and Personal Service; Assessing customer needs; Meeting quality standards for services; Evaluating customer satisfaction; Cost Control; Marketing; Accountability; Dependability and Presentation; Communication Skills; Active Listening; Service Orientation; Social Perceptiveness; Technology; Teamwork Skills; Time Management		
Occupations within this Standard:	Customer Service Representative; Hospitality Service Representative; Front Desk Agent; Guest Service Agent; Host; Event Coordinator; Retail Ticket Sales Representative; Entry Level Hotel Maintenance; Entry Level Technician; Concierge; Reservationist; Cashier; Housekeeping Operations; Gaming Service Worker		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

Rhode Island CTE Program Industry-Specific Standards			
Career Field	ProStart Culinary Artist and Foodservice Management	Career Cluster	Hospitality & Tourism
CIP Code	12.05__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three consecutive full years of Culinary Arts coursework		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Complete all of the following: <ul style="list-style-type: none"> • Level 1 ProStart National Certification • Level 2 ProStart National Certification • Servsafe Manager Certification 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: A concurrent partnership with Johnson & Wales or a local post-secondary institution is recommended Complementary Coursework: Nutrition & Customer Service		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Quality control; Customer Service; Food Safety Management Proper food storage and handling techniques; Cost Control; Culinary Techniques; Purchasing and inventory; Marketing and the menu; Knowledge of raw materials; Techniques for maximizing the effective manufacture and distribution of goods; Accountability; Dependability and presentation		
Occupations within this Standard:	Line Cook; Prep Cook; Chefs; Head Cooks; Bakers; Food Service Managers; Barista		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

US Dept. of Labor (USDOL) Career Cluster:
Information Technology

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Audio/Video/Film Production	Career Cluster	Information Technology
CIP Code	50.06__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Audio/Video coursework (Specialized -optional Year 3); Required Safety Training specific to content; One of the following: Autodesk; Adobe; YouScience; Goodheart-Willcox		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the Following: 1. Film Production - Posts Secondary Credit in this Career Cluster 1. Introduction to Digital Photography (GRC 118 40) 2. FLM 101: Introduction to Film Media (URI Harrington School) 2. Audio/Visual Production PrintED - AutoDesk - NOCTI 4005 - NOCTI Audio Visual Communications #3005 3. YouScience - Video Production #592, Television Boad Casting I #590, YouScience Video Production I and YouScience Video Production II 4. Adobe Premiere Pro		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	CTSO: Skills USA Postsecondary Partnerships: Central Maine CC., Johnson & Wales, New England Institute of Technology		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative Orientation to the trades; Technology specific equipment and basic operational techniques; Quality control; Artistic ability
Occupations within this Standard:	Broadcast and Sound Engineering Technicians ; Editors ; Multimedia Artists and Animators ; Graphic Designers ; Photographers ; Commercial Artists, Illustrators, Artists all Media ; Commercial Photographers Digital, Still, Video, Film ; Producers and Directors ; Reporters, Correspondents, and Broadcast News Analysts
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Networking (Cisco Certified Network Associate – CCNA)	Career Cluster	Information Technology
CIP Code	11.10__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Cisco Networking Academy Curriculum Required <ol style="list-style-type: none"> 1. Year 1 - Networking Essentials and CCNA: Introduction to Networks 2. Year 2 - CCNA: Switching, Routing, and Wireless Essentials 3. Year 3 - CCNA: Enterprise Networking, Security, and Automation 4. Or similar courses approved by CTE IT standards subcommittee 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Cisco Certified Network Associate (CCNA) Certification		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Find CS4RI guidance documents here: https://www.cs4ri.org/cte		
Skills & Knowledge for Entry Level:	<ul style="list-style-type: none"> • Understand how different network technologies and tools interact to form a secure IT network. • Explain how a computer network works and how it interacts with networked devices. • Configure, verify, and troubleshoot a switch with VLAN & interswitch communications. • Implement an IP addressing scheme and IP Services to meet specific network requirements. • Configure, verify, and troubleshoot routing and router operations on current Cisco devices. • Describe, setup, verify, and execute appropriate tasks for wireless local area networks (WLAN) • Implement & support Network Address Translation (NAT) and Access Control Lists (ACLs) • Identify network security threats and describe threat mitigation methods & countermeasures. • Excellent customer service and interpersonal skills; telephone etiquette. • Strong oral and written communication skills (both technical and non-technical) • Highly effective active listening skills, questioning, and issue management • Demonstrated problem-solving skills • Demonstrate excellent follow-through • Team player, Self-motivated, Highly organized 		

- | | |
|--|---|
| | <ul style="list-style-type: none">• Commitment and willingness to continually learn new products and technologies |
|--|---|

Occupations within this Standard:	Information technology-based positions
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Software Developer	Career Cluster	Information Technology
CIP Code	11.02	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Combination of Computer Science/Programming Courses (One of the following for each year. A course cannot be used more than once in a sequence.)</p> <ol style="list-style-type: none"> 1. Year 1 - Options below: <ol style="list-style-type: none"> a. URI Intro to Computing & Data Science b. AP Computer Science Principles (any curriculum provider) c. PLTW Computer Science Essentials d. Project STEM CS Python Fundamentals e. Carnegie Mellon CS1: Introduction to Programming with Python f. CodeHS Intro to Computer Science (any language) g. A course in "introductory programming" h. Similar course approved by CTE IT standards subcommittee 2. Year 2 - Options below: <ol style="list-style-type: none"> a. AP Computer Science Principles (any curriculum provider) b. AP Computer Science A (any curriculum provider) c. PLTW Digital Electronics d. CodeHS Mobile Apps e. CodeHS Video Game Design in JavaScript f. CodeHS Game Design in Unity g. A course in "advanced programming" h. A course in "video game development" i. A course in "mobile app development" j. Similar course approved by CTE IT standards subcommittee 3. Year 3 - Options below: <ol style="list-style-type: none"> a. AP Computer Science A (any curriculum provider) b. PLTW Digital Electronics c. Carnegie Mellon CS2: Interdisciplinary Programming d. CodeHS Mobile Apps e. CodeHS Video Game Design in JavaScript f. CodeHS Game Design in Unity g. CodeHS Data Structures in C++ 		

	<ul style="list-style-type: none"> h A course in “advanced programming” i A course in “video game development” j A course in “mobile app development” k A course in “data structures” l Similar course approved by CTE IT standards subcommittee
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>Earn one of the following credentials:</p> <ol style="list-style-type: none"> 1. Dual/Concurrent enrollment credit in a college-level Computer Programming or Computer Science course 2. NOCTI: Computer Programming 3. You Science: Computer Programming II (Formerly Precision Exams) 4. College Board's AP Computer Science Principles or AP Computer Science A, score of 3 or better on AP exams 5. Project Lead the Way Three Computer Science Courses Certificates with accomplished End of Course exam scores. 6. Oracle Foundations Associate, Java Certification 7. Certiport IT Specialist Certification in HTML5 Application Development, Java, JavaScript, Python, or Software Development 8. Google Associate Android Developer Exam 9. Unity Certified Associate Game Developer or Programmer 10. W3C Schools Certification Javascript, Python, Typescript, C++, C#, PHP, Java, JQuery, React.js 11. OpenJS Node.js Application Developer (JSNAD)
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<p>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</p>
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<p>Find CS4RI guidance documents here: https://www.cs4ri.org/cte</p> <p>Recommended that 4th Math course is any one of the following: Computer Science, Statistics, Pre-Calculus, or Calculus.</p> <p>Recommended that students take a structured work-based learning course focused on an industry project, such as:</p> <ul style="list-style-type: none"> • CS4RI Work-Based Learning (WBL) for Computer Science • PLTW Engineering Design and Development • Or another capstone-style course

Skills & Knowledge for Entry Level:	<p>Technical skills:</p> <ul style="list-style-type: none"> • Strong understanding of data structures and algorithms in different programming languages (Python, Java, C, C++, JavaScript, etc.) • Basic understanding of software testing, databases, and APIs. • Fundamental debugging skills. • Able to use integrated development environments (IDE), build tools, and other special software that aids software development. • Understanding of software development cycle, Agile philosophy, and Scrum methodology. • Experience with tools and concepts supporting software version control, like using Git/Github. <p>Collaboration skills: Developers must be able to work in teams of two or more to accomplish a common goal/task.</p> <p>Customer-service skills: Developers must be patient and empathetic. Their customers will often experience unwanted behavior or request features. The developer must work with the customer throughout the entire design process.</p> <p>Listening skills: Developers must be able to understand the problems that their customers are describing and use that information to implement a solution.</p> <p>Problem-solving skills: Developers must be able to test, troubleshoot, and debug syntax and semantic errors in software.</p> <p>Speaking skills: Developers must describe their solutions to their customers in a way that a nontechnical person can understand.</p> <p>Writing skills: Strong writing skills are useful to developers while preparing instructions, generating design documentation and end-user documentation, and emailing responses to colleagues and customers.</p> <p>Creativity: Computing is a creative activity, thus developers should be creative. Creativity and computing are prominent forces in innovation; the innovations enabled by computing have had and will continue to have far-reaching impact.</p>
Occupations within this Standard:	Software Developer; Software Engineer; Video Game Developer; Application Developer; Computer Programmer; Mobile Developer; Software Architect; Product Manager; Back-end Developer
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Web Developer	Career Cluster	Information Technology
CIP Code	11.08	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Computer Science/Web Design Courses (One of the following for each year. A course cannot be used more than once in a sequence.)</p> <ol style="list-style-type: none"> 1. Year 1 - Options below: <ol style="list-style-type: none"> a. URI Intro to Computing & Data Science b. CodeHS Intro to Computer Science in JavaScript c. CodeHS Web Design d. An approved course in "introductory web programming" e. Similar course approved by CTE IT standards subcommittee 2. Year 2 - Options below: <ol style="list-style-type: none"> a. AP Computer Science Principles (any curriculum provider) b. AP Computer Science A (any curriculum provider) c. CodeHS Web Design d. CodeHS Web Development e. An approved course in "advanced web programming" f. Similar course approved by CTE IT standards subcommittee 		

	<p>3. Year 3 - Options below:</p> <ul style="list-style-type: none"> a. CodeHS Web Development b. CodeHS Video Game Design in JavaScript c. An approved course in "full stack web development" d. An approved course in "HTML5 app development" e. An approved course in "React.js app development" f. Similar course approved by CTE IT standards subcommittee
<p>Culminating CTE Credential(s)</p> <p><i>*Note: Include each credential bundle option on a separate line, if applicable</i></p>	<p>Earn one of the following credentials:</p> <ul style="list-style-type: none"> 1. Dual/Concurrent enrollment credit in a college-level Web Development or Computer Science course 2. NOCTI: Web Design 3. You Science: Web Development II (Formerly Precision Exams) 4. College Board's AP Computer Science Principles or A P Computer Science A, score of 3 or better on AP exams 5. Certiport IT Specialist Certification in HTML and CSS, HTML5 Application Development, or JavaScript. 6. W3C Schools Certification in Frontend, JQuery, Typescript, JavaScript, PhP, Bootstrap Framework 3, Bootstrap Framework 4, Bootstrap Framework 5, or React.js
<p>Work-based Learning</p> <p><i>*Note: Include specific WBL activities, if applicable</i></p>	<p><i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i></p>
<p>Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)</p>	<p>Find CS4RI guidance documents here: https://www.cs4ri.org/cte</p> <p>Recommended that 4th Math course is any one of the following: Computer Science, Statistics, Pre-Calculus, or Calculus.</p> <p>Recommended that students take a structured work-based learning course focused on an industry project, such as:</p> <ul style="list-style-type: none"> • CS4RI Work-Based Learning (WBL) for Computer Science • PLTW Engineering Design and Development • Or another capstone style course

Skills & Knowledge for Entry Level:	<p>Technical skills:</p> <ul style="list-style-type: none"> • Strong understanding of web technologies (HTML, CSS, JavaScript, XML, JSON, etc.). • Basic understanding of web servers and their functioning. • Fundamental visual design skills and UX/UI best practices. • Able to use integrated development environments (IDE), build tools, and other special software that aids web development. • Understanding of web development cycle, Agile philosophy, and Scrum methodology. • Experience with tools and concepts supporting software version control, like using Git/Github. <p>Collaboration skills: Developers must be able to work in teams of two or more to accomplish a common goal/task.</p> <p>Customer-service skills: Developers must be patient and empathetic. Their customers will often experience unwanted behavior or request features. The developer must work with the customer throughout the entire design process.</p> <p>Listening skills: Developers must be able to understand the problems that their customers are describing and use that information to implement a solution.</p> <p>Problem-solving skills: Developers must be able to test, troubleshoot, and debug syntax and semantic errors in software.</p> <p>Speaking skills: Developers must describe their solutions to their customers in a way that a nontechnical person can understand.</p> <p>Writing skills: Strong writing skills are useful to developers while preparing instructions, generating design documentation and end-user documentation, and emailing responses to colleagues and customers.</p> <p>Creativity: Computing is a creative activity, thus developers should be creative. Creativity and computing are prominent forces in innovation; the innovations enabled by computing have had and will continue to have far-reaching impact.</p>
Occupations within this Standard:	Web Designer; Webmaster; Web Developer; Front-end Engineer; UX/UI Designer; Product Manager; Website Administrator;
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Cybersecurity Specialist	Career Cluster	Information Technology
CIP Code	43.04 (Security Science and Technology.)	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Computer Science/Networking/Cybersecurity Courses <i>(One of the following for each year. A course cannot be used more than once in a sequence.)</i></p> <ol style="list-style-type: none"> 1. Year 1 - Options below: <ol style="list-style-type: none"> a. URI Intro to Computing & Data Science b. PLTW Computer Science Essentials c. Cyber.org IT Fundamentals d. Cyber.org Intro to Cybersecurity e. Cyber.org Cyber Society f. CodeHS Fundamentals of Cybersecurity g. An approved course in "introductory cybersecurity" h. An approved course in "IT fundamentals" i. Similar course approved by CTE IT standards subcommittee 2. Year 2 - Options below: <ol style="list-style-type: none"> a. AP Computer Science Principles (any curriculum provider) b. URI Cybersecurity c. PLTW Cybersecurity d. Cisco CyberOps Associate e. Cyber.org Cybersecurity f. Cyber.org Cyber Science g. CodeHS Fundamentals of Cybersecurity h. CodeHS Advanced Cybersecurity i. An approved course in "network essentials" j. An approved course in "cybersecurity" 		

	<p>k. Similar course approved by CTE IT standards subcommittee</p> <p>3. Year 3 - <i>Options below:</i></p> <ul style="list-style-type: none"> a. AP Computer Science Principles (any curriculum provider) b. URI Cybersecurity c. PLTW Cybersecurity d. Cisco Network Security e. Cyber.org Cybersecurity f. Cyber.org Cyber Science g. CodeHS Advanced Cybersecurity h. An approved course in "cybersecurity" i. An approved course in "advanced cybersecurity" j. Similar course approved by CTE IT standards subcommittee
<p>Culminating CTE Credential(s)</p> <p><i>*Note: Include each credential bundle option on a separate line, if applicable</i></p>	<p>Earn one of the following credentials:</p> <ul style="list-style-type: none"> 1. Dual/Concurrent enrollment credit in a college-level Networking/Cybersecurity course 2. NOCTI: Cybersecurity Fundamentals 3. CompTIA: Security+ 4. Cisco Certified Support Technician (CCST) Cybersecurity 5. Project Lead the Way Three Computer Science Courses Certificates with accomplished End of Course exam scores (Must include Cybersecurity course). 6. Certiport IT Specialist Certification in Cybersecurity or Network Security 7. W3C Schools Certification in Cyber Security 8. GIAC Foundational Cybersecurity Technologies (GFACT)
<p>Work-based Learning</p> <p><i>*Note: Include specific WBL activities, if applicable</i></p>	<p><i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i></p>
<p>Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)</p>	<ul style="list-style-type: none"> ▪ Find CS4RI guidance documents here: https://www.cs4ri.org/cte ▪ Recommended that 4th Math course is any one of the following: Computer Science, Statistics, Pre-Calculus, or Calculus. ▪ At least of one the three courses in a school's sequence must be a Cybersecurity course. ▪ It is recommended that CTE Cybersecurity Specialist programs have an associated extracurricular cybersecurity club/team that participates in events such as Cyber Patriot, Pico CTF, and/or the National Cyber League

Skills & Knowledge for Entry Level:

Technical skills:

- Assess user-based cyber attacks, threats, and vulnerabilities including: social engineering, phishing, impersonation, dumpster diving, and shoulder surfing.
- Assess technology-based cyber attacks, threats, and vulnerabilities including malware, crypto-malware, trojans and RATs, rootkits, spyware, bots, logic bombs, password attacks
- Assess application-based cyber attacks, threats, and vulnerabilities including privilege escalation, cross-site scripting, and injection attacks
- Assess network-based cyber attacks, threats, and vulnerabilities including DNS spoofing, and denial of service.
- Explain the application of authentication techniques to protect computer systems and data.
- Explain the functionality and application of cryptography to cybersecurity including symmetric encryption, public key encryption, and digital hashing.
- Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.
- Explain tradeoffs when selecting and implementing cybersecurity recommendations.
- Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.
- Explain how the digital security of an organization may be affected by the actions of its employees.
- Describe the appropriate actions to take in response to detected security breaches.

Collaboration skills: Cybersecurity specialists must be able to work in teams of two or more to accomplish a common goal/task.

Customer-service skills: Cybersecurity specialists must be patient and empathetic. Their customers will often experience unwanted behavior or request features. The developer must work with the customer throughout the entire design process.

Listening skills: Cybersecurity specialists must be able to understand the problems that their customers are describing and use that information to implement a solution.

Problem-solving skills: Cybersecurity specialists must be able to test, troubleshoot, and debug cybersecurity solutions.

	<p>Speaking skills: Cybersecurity specialists must describe their solutions to their customers in a way that a nontechnical person can understand.</p> <p>Writing skills: Strong writing skills are useful to cybersecurity specialists while preparing instructions, generating design documentation and end-user documentation, and emailing responses to colleagues and customers.</p>
Occupations within this Standard:	(from Cyberseek): Cybersecurity Specialist, Cyber Crime Analyst, Incident and Intrusion Analyst, IT Auditor
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Graphic Communications Technology – Advertising, Promotions, and Marketing	Career Cluster	Information Technology
CIP Code	50.0401; 50.0402	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Graphic Communications coursework (Specialized - optional Year 3) Media Arts Standards at a Glance		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	At least one of the following: <ol style="list-style-type: none"> 1. PrintED 2. Adobe Certification 3. Xerox/Konica Minolta 4. Post Secondary Credit in Career Cluster GRC 176 – Photoshop 1 (CMCC), 5. YouScience formerly Precision Exams Digital Marketing, Digital Media I #560, Desktop Publishing I #248, Desktop Publishing II #249 6. NOCTI 4219 7. AutoDesk One of the following: <ol style="list-style-type: none"> 1. MAVCC/Print[ED] 2. Adobe 3. Precision 4. Goodheart Willcox – Marketing 5. Other Graphic Communications Coursework approved by CTE_BOT GCT Advisory 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Central Maine CC; Johnson & Wales; New England Institute of Technology CTSOs: Skills USA; DECA; FBLA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative Orientation to the trades; Technology specific equipment and basic operational techniques; Quality control; Artistic ability
Occupations within this Standard:	Desktop Publishing Specialists; CAD Technicians; Industrial designers; Graphic Designers; Interior Designers, Commercial/Residential; Commercial Artists, Illustrators, Artists all Media; Commercial Photographers Digital, Still, Video, Film; Advertising Sales Agents; Editors; Market Research Analysts; Public Relations and Fundraising Managers; Public Relations Specialists
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Graphic Communications Technology – Designer	Career Cluster	Information Technology
CIP Code	50.04__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential of Visual Arts Courses (Specialized -optional Year 3) Required safety training specific to content Visual Arts Standards & Curriculum		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the Following: 1. PrintED -Career Essentials Graphic Design 2. Adobe Certification Visual Design using Adobe Photoshop 3. Xerox/Konica Minolta 4. Post Secondary Credit in Career Cluster GRC 176 – Photoshop 1 (CMCC), 5. YouScience formerly Precision Exams Digital Print Design, 6. NOCTI CODE: 7932, Advertising & Design #4119 7. AutoDesk		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA; Art History; AP Art History; Adobe Certification; RI State Council on the Arts Credential		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Demonstrate their skill and talent through a portfolio of work; Exhibit creativity through unique visual problem solving; Display their work through traditional methods and a web- portfolio; Possess customer service/interpersonal skills; Possess basic art and design skills; Be prepared for a highly competitive environment.
Occupations within this Standard:	Architectural Designer; Graphic Designers; Fashion Designer; Floral Designer; Graphic Design Assistant; Industrial Design Assistant; Associate's Degree: Web Developer; Drafters; Desktop Publisher; Architect; Interior Designer
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Graphic Communications Technology—Print Manufacturing- Pre-Production	Career Cluster	Information Technology
CIP Code	10.02 __; 10.03 __	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Graphic Communications coursework (Specialized - optional Year 3) Media Arts Standards at a Glance		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	One of the following: <ol style="list-style-type: none"> 1. PrintED 2. Adobe Certification 3. Xerox/Konica Minolta 4. Post Secondary Credit in Career Cluster: GRC 176 Central Maine Community College 5. YouScience formerly Precision Exams Production Graphics 1, Digital Media #560 6. NOCTI 4342 7. AutoDesk One of the following: <ol style="list-style-type: none"> 1. MAVCC/Print[ED] 2. Adobe 3. Precision 4. Goodheart Willcox - Graphic Communications: Digital Design and Print 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative Orientation to the trades; Technology specific equipment and basic operational techniques; Quality control; Artistic ability
Occupations within this Standard:	Prepress Technical Technician ; Production Artist; Desktop Publishing Specialists; CAD Technicians; Industrial designers; Graphic Designers; Interior Designers, Commercial/Residential; Commercial Artists, Illustrators, Artists all Media; Commercial Photographers Digital, Still, Video, Film; Web developers/designers; Multimedia artists and animators; Printing and Related Support Activities
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Graphic Communications Technology—Print Manufacturing- Production	Career Cluster	Information Technology
CIP Code	10.02__ ; 10.03__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Graphic Communications coursework (Specialized -optional Year 3): <ol style="list-style-type: none"> 1. MAVCC/Print[ED] 2. Adobe 3. Precision 4. Goodheart Willcox - Graphic Communications: Digital Design and Print 		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	One of the following: <ol style="list-style-type: none"> 1. PrintED 2. Adobe Certification 3. Xerox/Konica Minolta 4. Post Secondary Credit in Career Cluster: GRC 176 Central Maine Community College 5. YouScience formerly Precision Exams Production Graphics 1, Digital Media I #560 6. NOCTI 4342 7. AutoDesk Required Curriculum: One of the Following: <ol style="list-style-type: none"> 1. MAVCC/Print[ED] 2. Adobe 3. Precision 4. Goodheart Willcox - Graphic Communications: Digital Design and Print 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		

Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	SkillsUSA; DECA; FBLA
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative Orientation to the trades; Technology specific equipment and basic operational techniques; Quality control; Artistic ability
Occupations within this Standard:	Digital and Printing Press operators; Print Binding and Finishing Workers; Printing and Related Support Activities; Desktop Publishing Specialists; CAD Technicians; Industrial designers; Graphic Designers; Interior Designers: Commercial/Residential; Commercial Artists, Illustrators, Artists all Media; Commercial Photographers Digital, Still, Video, Film; Web developers/designers; Multimedia artists and animators
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Graphic Communications Technology - Digital Designer & Web- Print -Commerce	Career Cluster	Information Technology
CIP Code	10.02__ ; 10.03__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least Three years of sequential Graphic Communications coursework (Specialized -optional Year 3) including one of the following: <ol style="list-style-type: none"> 1. MAVCC/Print[ED] 2. Adobe 3. Precision 4. Goodheart Willcox - Graphic Communications: Digital 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: <ol style="list-style-type: none"> 1. PrintED 2. Adobe Certification 3. Xerox/Konica Minolta 4. Post Secondary Credit in Career Cluster GRC 176 – Photoshop 1 (CMCC), 5. YouScience formerly Precision Exams Digital Marketing, 6. NOCTI 3425 7. AutoDesk Required Curriculum (One of the Following) <ol style="list-style-type: none"> 1. MAVCC/Print[ED] 2. Adobe 3. Precision 4. Goodheart Willcox - Graphic Communications: Digital 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		

Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Post-Secondary Partnerships: Roger Williams University, New England Institute of Technology, Central Maine CC, Johnson & Wales Coursework: Physics Skills USA; DECA; FBLA
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative Orientation to the trades; Technology specific equipment and basic operational techniques; Quality control; Artistic ability
Occupations within this Standard:	Desktop Publishing Specialists; CAD Technicians; Industrial designers; Graphic Designers; Interior Designers: Commercial/Residential; Commercial Artists, Illustrators, Artists all Media; Commercial Photographers Digital, Still, Video, Film; Web developers/designers; Multimedia artists and animators
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Information Technology Specialist	Career Cluster	Information Technology
CIP Code	11.0103	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Information Technology Courses <i>(One of the following for each year. A course cannot be used more than once in a sequence.)</i></p> <ol style="list-style-type: none"> 1. Year 1 - Options below: <ol style="list-style-type: none"> a. URI Intro to Computing & Data Science b. PLTW Computer Science Essentials c. Cisco NDG Linux Essentials d. Cisco IT Essentials e. Cyber.org IT Fundamentals f. K12 IT Essentials g. An approved course in "introductory IT" h. Similar course approved by CTE IT standards subcommittee 2. Year 2 - Options below: <ol style="list-style-type: none"> a. AP Computer Science Principles (any curriculum provider) b. AP Computer Science A (any curriculum provider) c. URI Cybersecurity d. PLTW Cybersecurity e. Cisco NDG Linux Essentials f. Cisco NDG Linux I g. Cisco IT Essentials h. Cyber.org Cyber Science i. K12 IT Essentials j. Similar course approved by CTE IT standards subcommittee 3. Year 3 - Options below: 		

	<ul style="list-style-type: none"> a AP Computer Science Principles (any curriculum provider) b AP Computer Science A (any curriculum provider) c URI Cybersecurity d PLTW Cybersecurity e Cisco IT Essentials f Cisco NDG Linux Essentials g Cisco NDG Linux I h Cisco NDG Linux II i Cyber.org Cyber Science j Similar course approved by CTE IT standards subcommittee <p>It is recommended that proposed alternative courses meet the International Society For Technology Education (ISTE) Standards for Students</p>
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>Earn one of the following credentials:</p> <ol style="list-style-type: none"> 1. Dual/Concurrent enrollment credit in a college-level CS/IT/Networking/Cybersecurity course 2. NOCTI: Computer Networking Fundamentals 3. You Science: Information Technology Fundamentals 4. CompTIA IT Fundamentals and A+ certifications 5. CompTIA: Security+ 6. CompTIA: Network+ 7. Cisco CCENT (Cisco Certified Entry Networking Technician) Certificate or End of Course validation letter and certificate provided by Cisco 8. Cisco Certified Support Technician (CCST) Networking 9. Certiport IT Specialist Certification (any certification) 10. College Board's AP Computer Science Principles or AP Computer Science A, score of 3 or better on AP exams 11. Project Lead the Way Three Computer Science Courses Certificates with accomplished End of Course exam scores. 12. Google: Google IT Certification

Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<p>Find CS4RI guidance documents here: https://www.cs4ri.org/cte</p> <p>Recommended that students take a structured work-based learning course focused on an industry project, such as:</p> <ul style="list-style-type: none"> • CS4RI Work-Based Learning (WBL) for Computer Science • PLTW Engineering Design and Development • Or another capstone style course
Skills & Knowledge for Entry Level:	<p>Technical skills:</p> <p>Collaboration skills: Developers must be able to work in teams of two or more to accomplish a common goal/task.</p> <p>Customer-service skills: Developers must be patient and empathetic. Their customers will often experience unwanted behavior or request features. The developer must work with the customer throughout the entire design process.</p> <p>Listening skills: Developers must be able to understand the problems that their customers are describing and use that information to implement a solution.</p> <p>Problem-solving skills: Developers must be able to test, troubleshoot, and debug syntax and semantic errors in software.</p> <p>Speaking skills: Developers must describe their solutions to their customers in a way that a non-technical person can understand.</p> <p>Writing skills: Strong writing skills are useful to developers while preparing instructions, generating design documentation and end-user documentation, and emailing responses to colleagues and customers.</p> <p>Creativity: Computing is a creative activity, thus developers should be creative. Creativity and computing are prominent forces in innovation; the innovations enabled by computing have had and will continue to have far-reaching impact.</p>
Occupations within this Standard:	Service desk specialist; IT Specialist; Desktop Support Technician; Help Desk Technician; Computer Technician; Network Technician; IT Support Analyst
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Music Technologist	Career Cluster	Information Technology
CIP Code	50.0913	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three years of sequential core music performance classes (Examples: Band, Chorus, Orchestra) + Music Technology I + Music Technology II + Music Technology III Music Tech Strand Standards		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: 1. Bose certification 2. AP Music Theory Exam 3. Post-Secondary credit in Career Cluster - RIC Music 201 (or any one RIC Music course from the 200s)		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Skills USA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Skills in Audio Editing, Recording, Mixing, and Mastering; Ability to use MIDI and Virtual Instruments; Sound Design; Music Composition/Production; Creating Video Soundtracks; Ability to assess audio requirements; Acquiring, editing, processing, mastering, exporting, and implementing audio assets for video games; Familiarity with the basics of middleware (FMOD or similar) and the basics of a video game editor (Unity or similar) for audio implementation; Proficiency in using Avid's Pro Tools
Occupations within this Standard:	High School Diploma- Intern at recording studio/broadcasting station Freelance Sound Technician Associate's Degree- Assistant Sound Designer ; Composer/Arranger ; Assistant Sound Effects (SFX) ; Editor ; Assistant Foley Artist ; Assistant Recording Engineer ; Assistant Audio Editor ; Bachelor's Degree- Sound Designer; Composer/Arranger ; Sound Effects (SFX) Editor ; Foley Artist ; Recording Engineer ; Audio Editor ; Audio Implementer (Audio Programmer) ; Acoustical Consultant ; Music Teacher ; Music Therapist
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Sound Engineering Technician	Career Cluster	Information Technology
CIP Code	15.0307	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least three years of sequential theatre arts coursework		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: <ol style="list-style-type: none"> 1. AVIXA credits & Bose certifications 2. Post-secondary Credit in Career Cluster 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Optional: Health and Safety OSHA 10; Skills USA Career Essentials Assessments Audio-Radio Production; TV Video Production; Udemy Online Courses- May include Logic ProX, Pro Tools, Adobe Premiere, Final Cut Pro; Digital and Video Communications; Film and Literature; Mass Media; Theater Workshop		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Proficiency in a variety of skills including: photography, sound, scriptwriting, scoring/composition, multi-track recording, musical notation, lighting, design, direction, floor operation, audio and video post-production, and editing		
Occupations within this Standard:	Producer , Camera operator , Director , Sound engineering technician , Videographer , Video/sound editor , Composer for film , Sequencing programmer		
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.		

US Dept. of Labor (USDOL) Career Cluster:
Law, Public Safety, Corrections, and Security

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Firefighter	Career Cluster	Law, Public Safety, Corrections, and Security
CIP Code	43.02__	GWB Priority Sector	No
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> • Introduction to Fire Services • Firefighter Level I • Firefighter Level II OR <ul style="list-style-type: none"> • Firefighter Level I • Firefighter Level II • EMT Certification 		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	One of the following: <ul style="list-style-type: none"> • NFPA 1001 Certification Exam (Written and Physical Component) • NIMS • EMT cert 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Curriculum: Essentials of Fire Fighting (IFSTA) w/Workbook and Exam Prep OR RI Fire Academy Text Lessons: <ol style="list-style-type: none"> 1. Fire Dept. and Fire Service Orientations & Organizations 2. Fire Behavior 3. Building Construction (Different Structures) 4. Safety 5. Communications 6. SCBA: Self Contained Breathing Apparatus 7. Extinguishers 8. Ladders 9. Hose & Appliances 10. Nozzles & Streams 11. Water Supply 		

	Post-Secondary Partnerships: CCRI Industry Partners: Local Fire Department; RI State Association of Firefighters; RI Fire Academy; Girls Future Firefighter's Camp Coursework: Public Speaking, Sociology, Psychology, First Aid, & CPR, Environmental Science, Introduction to Public Safety; Girls Future Firefighter's Camp
Skills & Knowledge for Entry Level:	Communication: FF must be able to explain conditions at an emergency Compassion: FF need to provide emotional support to those in emergency situations Decision Making Skills: FF must be able to make difficult choices quickly Mental Preparedness: FF must be able to handle the stressfulness of their work Physical Stamina: FF may have to stay at disaster sciences for long periods of time to rescue and treat victims Physical Strength: FF must be strong enough to carry heavy equipment and move debris at an emergency site. They also carry victims who cannot walk.
Occupations within this Standard:	Firefighter
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Law Enforcement & Corrections Officer	Career Cluster	Law, Public Safety, Corrections, and Security
CIP Code	43.01__	GWB Priority Sector	No
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>A minimum of three courses in the following sequence:</p> <ol style="list-style-type: none"> 1. Introduction to Criminal Justice 2. Forensics Science 3. Law and Society 4. Corrections 5. Court Systems <p>Other college-level curricula can be used but the sequence of courses should include content/concepts in at least three of the following: Criminal Justice System, Law and Society, Court Systems (included in Law and Society), Corrections (included in Law and Society), and Forensic Science.</p>		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>National Incident Management System Training (ICS 100) AND One of the following:</p> <ol style="list-style-type: none"> 1. NOCTI 4281: Criminal Justice 2. Precision Exam: Criminal Justice I (now part of YouScience) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<p><i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i></p>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<p>RWU curriculum: Introduction to Criminal Justice, Law and Society, and Forensics Science. NEIT Curriculum: Introduction to Criminal Justice, Corrections, Court Systems Credentials: RWU: transcribed college credits; NEIT college credit; CPR certification Postsecondary Partnerships: Roger Williams University or New England Institute of Technology Complementary Coursework: Sociology, Psychology, Fitness & Conditioning (to prepare for academy fitness tests) CTSO: SkillsUSA</p>		

Skills & Knowledge for Entry Level:	Respond to emergency and non-emergency calls; Patrol assigned areas; Conduct traffic stops and issue citations; Search for vehicle records and warrants using computers in the field; Obtain warrants and arrest suspects; Collect and secure evidence from crime scenes; Observe the activities of suspects; Write detailed reports and fill out forms; Prepare cases and testify in court; Possess knowledge of the law; Knowledge of community relations; Possess good communication skills; General knowledge of mental health calls to service in law enforcement; Knowledge of mental health resources available in the community
Occupations within this Standard:	Corrections Officer; Court Reporter; Court Staff; Criminal Investigator; Federal Law Enforcement; Park Ranger; Police and Patrol Officer; Probation/Parole Officer; Youth Services Worker; Victim Advocate
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Military	Career Cluster	Law, Public Safety, Corrections, and Security
CIP Code	28.03__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least 3 consecutive years of JROTC curriculum		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	ASVAB test (note: does not count against the 1 of 3 ASVAB tests that military candidates would require) AND One of the following: <ol style="list-style-type: none"> 1. Certificate issued by Senior Instructor for advanced promotion 2. Advanced college placement into JROTC 2 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Colleges w/participating ROTC programs and/or National Guard, Active Duty, or Reserve Affiliation CTSO: SkillsUSA		
Skills & Knowledge for Entry Level:	Enlisted personnel typically do the following: Participate in, or support, military operations, such as combat or training operations, or humanitarian or disaster relief; Operate, maintain, and repair equipment; Perform technical and support activities Officers typically do the following: Plan, organize, and lead troops and activities in military operations; Manage enlisted personnel; Operate and command aircraft, ships, or armored vehicles; Provide medical, legal, engineering, and support		
Occupations within this Standard:	Construction personnel Electronic and electrical equipment repair personnel Co-Administrative personnel Combat specialty personnel Engineering, science, and technical personnel		

	Healthcare personnel Human resources development personnel Machine operator and repair personnel Media and public affairs personnel Protective service personnel Support service personnel Transportation and material-handling personnel Vehicle and machinery mechanical personnel
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Paralegal/Legal Assistant	Career Cluster	Law, Public Safety, Corrections, and Security
CIP Code	22.0302	GWB Priority Sector	No
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At least 3 consecutive years of coursework: <ul style="list-style-type: none"> • PLS 100 Intro to Law • PLS 110 Emerging Technologies in the Legal Environment • PLS 210 Legal Research & Writing I • PLS 400 Legal Ethics from an accredited program 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	One of the following: <ol style="list-style-type: none"> 1. NOCTI Legal Services 2. Paralegal Core Competency Exam (note, not required in RI but is recommended by the RI Paralegal Association) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Internship at local, state or government agencies, court, or other related agencies; Service Learning; Industry Project: Projects working with advocacy groups, community agencies, and/or college of legal studies; School Based Enterprise; Apprenticeship		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Credentials: Conflict Resolution (40 hour certification course) (If adding Conflict Resolution, Instructor must have Mediator Certification); Microsoft Certificate Postsecondary Partnerships: Roger Williams University Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Conflict Resolution, Microsoft Certification, Psychology CTSO: Skills USA		
Skills & Knowledge for Entry Level:	Investigate and gather the facts of a case; Conduct research on relevant laws, regulations, and legal articles; Organize and maintain documents in paper or electronic filing systems; Gather and arrange evidence and other legal documents for attorney review and case preparation; Write or summarize reports to help lawyers prepare for trials; Draft correspondence and legal documents, such as contracts and mortgages; Get affidavits and other formal statements that may be used as evidence in court; Help lawyers during trials by handling exhibits, taking notes, or reviewing; trial transcripts; File exhibits, briefs, appeals and other legal documents with the court or		

	opposing counsel; Call clients, witnesses, lawyers, and outside vendors to schedule interviews, meetings, and depose; Use technology and computer software for managing and organizing the increasing amount of documents and data collected during a case; Interpersonal and communication skills (Written and Oral)
Occupations within this Standard:	Attorney; Arbitrator; Paralegal; Mediator; Loss Prevention Specialist; Secretary; Administrative Assistant; Public Information Officer; Youth Services Worker; Legal Assistant; Court Reporter
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

US Dept. of Labor (USDOL) Career Cluster:
Manufacturing

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Electronics Technician	Career Cluster	Manufacturing
CIP Code	47.01__; 14.10__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least three consecutive years of Electronics training through one of the following curriculum providers: Electronics Technician Association (ETA); International Society of Certified Electronics Technicians (ISCET): <ul style="list-style-type: none"> • Introduction to Soldering • Rough-hole Soldering Techniques • Surface Mount Soldering Techniques 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Completers would need the following: <ul style="list-style-type: none"> • IPC Overview of Electronics Manufacturing Assembly (Module 153C) AND one of the following: <ul style="list-style-type: none"> • ISCET DC Electronics Certification (Module ESA 1) • ETA (Module EM1) AND any two of the Following: <ol style="list-style-type: none"> 1. IPC Soldering Terminals (Module 18C) 2. IPC Through Hole Solder Joint Quality Standards (Module PTH-F) 3. IPC Introduction to Hand Soldering (Module 142C) 4. IPC Surface Mount Solder Joint Quality Standards (Module SMT-F) 5. IPC Hand Soldering - SMT Component Installation (Module 144C) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Credential: IPC Safety in Electronics Manufacturing Postsecondary Partnerships: NEIT Complementary Coursework: Pre-Calculus, Physics CTSO: SkillsUSA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Electromechanical Engineering Technologist; Industrial Engineering Technologist; Manufacturing Engineering Technologist; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Electronic component recognition; Hand soldering of electronic components; Test and calibrate electronic devices using instrumentation
Occupations within this Standard:	Electromechanical Engineering Technologist; Industrial Engineering Technologist; Manufacturing Engineering Technologist
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Entry-level Machinist (Option: Tool & Die Makers)	Career Cluster	Manufacturing
CIP Code	15.0613	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At Least three consecutive years of Manufacturing through approved providers National Institute for Metalworking Skills (NIMS) or PTECH program:</p> <ul style="list-style-type: none"> • Introduction to Machining • Manual Machining • CNC Machining <p>NIMS Modules:</p> <ul style="list-style-type: none"> • Module 1: Identify & Demonstrate Use of Machine Safety & PPE Competency-Based Apprenticeship System for Machinist • Module 2: Demonstrate Compliance with Lock-out/Tag-out Procedures Competency-Based Apprenticeship System for • Module 3: Hazardous Material Handling and Storage Competency-Based Apprenticeship System for Machinist • Module 4: Part Inspection Competency-Based Apprenticeship System for Machinist • Module 5 & 6: Process Control and Process Adjustment Competency-Based Apprenticeship System for Machinist • Module 11: Job Process Planning Competency-Based Apprenticeship System for Machinist • Module 13 & 14: Turning between Centers Level I & II Competency-Based Apprenticeship System or Machinist • Module 15 & 16: Turning Operations: Chucking Competency-Based Apprenticeship System for Machinist • Module 17: Milling: Square Up a Block Competency-Based Apprenticeship System Competency-Based Apprenticeship System for Machinist • Modules 18 & 19: Manual Milling: Vertical and Horizontal Competency-Based Apprenticeship System for Machinist 		

	<ul style="list-style-type: none"> Module 26: CNC Basic Programming Competency-Based Apprenticeship System for Machinist
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>Completers would need the following:</p> <ul style="list-style-type: none"> NIMS: Measurement, Materials & Safety (Modules 1-6) OSHA-10 General <p>AND one of the following:</p> <ol style="list-style-type: none"> NIMS: Milling 1 (Modules 11, 17-19) NIMS: Turning 1: Turning Between Centers (Modules 11, 13, & 14) NIMS: Turning 1: Chucking (Modules 11, 15, & 16) NIMS: CNC Turning: Programming, Setup & Operations (Modules 11 & 26) NIMS: CNC Milling: Programming, Setup & Operations (Modules 11 & 26)
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: CCRI; CMCC; NEIT CTSO: SkillsUSA
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Industrial machinery mechanics; Machinery maintenance; Sheet metal; Machinery Maintenance; Tool Die Makers; Initiative; Orientation to the trades; Safety (OSHA 10); Read blueprints, sketches, or computer-aided design (CAD) and computer-aided manufacturing (CAM) files; Set up, operate, and disassemble manual, automatic, and computer numerically controlled (CNC) machine tools; Align, secure, and adjust cutting tools and workpieces; Monitor the feed and speed of machines; Turn, mill, drill, shape, and grind machine parts to specifications; Measure, examine, and test completed products for defects; Smooth the surfaces of parts or products; Present finished workpieces to customers and make modifications if needed
Occupations within this Standard:	Industrial machinery mechanics; Machinery maintenance; Sheet metal; Machinery Maintenance; Tool Die Makers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Entry-level Manufacturing (Logistical Function)	Career Cluster	Manufacturing
CIP Code		GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	At Least three consecutive years of Manufacturing		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	At least one of the following: <ul style="list-style-type: none"> Manufacturing Standards Skills Council (MSSC): Logistics Technician (CLT) Certificate Manufacturing Standards Skills Council (MSSC): Foundational-level Certified Logistics Associate (CLA) Certificate AND <ul style="list-style-type: none"> Midlevel technical CLT Certification 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)			
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Safety CERTIFIED LOGISTICS ASSOCIATE (CLA): Global supply chain logistics life cycle; Logistics environment; Material handling equipment; Safety principles; Safe material handling and equipment operation; Quality control principles; Workplace communications; Teamwork and workplace behavior to solve problems; Using computers CERTIFIED LOGISTICS TECHNICIAN (CLT): Product receiving; Product storage; Order processing; Packaging and shipment; Inventory control; Safe handling of hazmat materials; Evaluation of transportation modes; Dispatch and tracking; Measurements and metric conversions		
Occupations within this Standard:			
Salary Information:	RI DLT Employment & Wages by Industry		
Projected Job Outlook:	RI DLT Occupational Projections		

Related Teacher Certification

Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Entry-Level Machinist – Manufacturing - Defense (EB Partnership)	Career Cluster	Manufacturing
CIP Code		GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At least three consecutive years of Manufacturing from National Institute for Metalworking Skills (NIMS):</p> <ul style="list-style-type: none"> Machine Technology 1 Machine Technology 2 Machine Technology 3 <p>Following modules:</p> <p>-Module 1: Identify & Demonstrate use of Machine Safety & PPE Competency-Based Apprenticeship System for Machinist</p> <p>-Module 2: Demonstrate Compliance with Lock-out/Tag-out Procedures Competency-Based Apprenticeship System for Machinist</p> <p>-Module 3: Hazardous Material Handling and Storage Competency-Based Apprenticeship System for Machinist</p> <p>-Module 4: Part Inspection Competency-Based Apprenticeship System for Machinist</p> <p>-Module 5 & 6: Process Control and Process Adjustment Competency-Based Apprenticeship System for Machinist</p> <p>-Module 11: Job Process Planning Competency-Based Apprenticeship System for Machinist</p> <p>-Module 13 & 14: Turning between Centers Level I & II Competency-Based Apprenticeship System for Machinist</p> <p>-Modules 15 & 16: Turning Operations: Chucking Competency-Based Apprenticeship System for Machinist</p> <p>-Module 17: Milling: Square Up a Block Competency-Based Apprenticeship System for Machinist</p> <p>-Modules 18 & 19: Manual Milling: Vertical and Horizontal Competency-Based Apprenticeship System for Machinist</p> <p>-Module 26: CNC Basic Programming Competency-Based Apprenticeship System for Machinist</p>		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	1. NIMS Measurement, Materials and Safety (Modules 1-6) 2. OSHA-10		

	<p>AND</p> <p>One of the following:</p> <ol style="list-style-type: none"> 1. NIMS: Milling 1 (Modules 11, 18, &19) 2. NIMS: Turning 1: Turning Between Centers (Modules 11,13, &14) 3. NIMS: Turning 1: Chucking (Modules 11, 15, & 16) <p>AND</p> <p>One of the following:</p> <ol style="list-style-type: none"> 1. NIMS: CNC turning: Programming Setup & Operations (Modules 11 & 26) 2. NIMS: CNC Milling: Programming, Setup & Operations (Modules 11 & 26)
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: CCRI, CMCC, NEIT Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.) Physics CTSO: SkillsUSA
Skills & Knowledge for Entry Level:	<p>Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Read blueprints, sketches, or computer-aided design (CAD) and computer-aided manufacturing (CAM) files; Set up, operate, and disassemble manual, automatic, and computer numerically controlled (CNC) machine tools; Align, secure, and adjust cutting tools and workpieces; Monitor the feed and speed of machines; Turn, mill, drill, shape, and grind machine parts to specifications; Measure, examine, and test completed products for defects; Smooth the surfaces of parts or products</p> <p>Present finished workpieces to customers and make modifications if needed</p>
Occupations within this Standard:	<p>Industrial machinery mechanics; Machinery maintenance; Sheet metal; Machinery Maintenance; Tool Die Makers</p>
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<p>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</p>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Maritime Electrical – Manufacturing - Defense (EB Partnership)	Career Cluster	Manufacturing
CIP Code	47.0616; 14.2201	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At Least three consecutive years of Maritime Electrical: Maritime Electrical 1; Maritime Electrical 2; Maritime Electrical 3</p> <p>Must complete all NCCER Modules Below:</p> <p>Maritime Electrical Level 1 167.5 Hours</p> <ul style="list-style-type: none"> • Module ID 26101-17 Orientation to the Electrical Trade (2.5 Hours) • Module ID 26102-17 Electrical Safety (10 Hours) • Module ID 26104-17 Electrical Theory (7.5 Hours) • Module ID 26103-17 Introduction to Electrical Circuits (7.5 Hours) • Module ID 26110-17 Basic Electrical Construction Drawings (7.5 Hours) <p>Maritime Electrical Level 2 100 Hours</p> <ul style="list-style-type: none"> • Module ID 26201-17 Alternating Current (17.5 Hours) • Module ID 26209-17 Grounding and Bonding (15 Hours) • Module ID 26109-17 Conductors and Cables (10 Hours) • Module ID 26206-17 Conductor Installations (10 Hours) • Module ID 26208-17 Conductor Terminations and Splices (7.5 Hours) • Module ID 26205-17 Pull and Junction Boxes (12.5 Hours) 		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	<p>Maritime OSHA</p> <p>AND</p> <p>Defense Industry Credential (based on completing approved NCCER Modules listed)</p>		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		

Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: New England Institute of Technology, Community College of Rhode Island Complementary Coursework: Chemistry CTSO: SkillsUSA Industry Partners: General Dynamics; Electric Boat Credential: Orientation to the Electrical Trade; Electrical Safety; Electrical Theory; Introduction to Electrical Circuits; Basic Electrical Construction Drawings
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Orientation to the trades; Safety (OSHA 10)
Occupations within this Standard:	Electronic Engineering; Technologist; Aircraft and Avionics Equipment Mechanics and Technician; Electrical and Electronic Engineers; Electrical and Electronic Repairers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Pipefitting – Manufacturing - Defense (EB Partnership)	Career Cluster	Manufacturing
CIP Code	46.0502	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At least three consecutive years of Manufacturing: Machine Technology; 1 Machine Technology 2; Machine Technology 3</p> <p>Required Curriculum: Maritime Pipefitting NCCER Level 1 185 HRs Module ID 85101-13 Orientation to the Maritime Pipefitting Trade (5 hours) Module ID 85102-13) Maritime Pipefitting Trade Math (15 hours) Module ID 85103-13) Pipefitting Hand Tools (20 hours) Module ID 85104-13) Pipefitting Power Tools (15 hours) Module ID 85105-13) Oxyfuel Cutting (17.5 hours) Module ID 85106-13) Ladders and Scaffolds (12.5 hours) Maritime Pipefitting NCCER Level 1 152.5 HRS (2019) Module ID 85201-13 Piping Systems (5 hours) Module ID 85202-13 Butt Weld Pipe Fabrication (37.5 hours) Module ID 85203-13) Socket Weld Pipe Fabrication (25 hours) Module ID 85204-13 Preparing and Brazing (15 hours) Module ID 85205-13 Threaded Pipe Fabrication (15 hours) Module ID 85206-13) Fiberglass and Plastic Pipe (15 hours) Module ID 85207-13 Identifying Valves, Flanges, and Gaskets (20 hours) Module ID 85208-13 Drawings and Detail Sheets (20 hours)</p>		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>Defense Industry Credential (Based on completing approved NCCER Modules listed)</p> <p>AND</p> <p>Maritime OSHA</p>		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<p><i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i></p>		
Recommended (not required) CTE Curriculum, Credentials, Courses,	<p>Postsecondary Partnerships: CCRI, NEIT Industry Partners: General Dynamics/Electric Boat; SENEDIA</p>		

Partnerships, and/or Career & Technical Student Organizations (CTSOs)	
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Safety; Relevant Math; Basic Operational Techniques; Quality Control; Human Relations
Occupations within this Standard:	Plumbers; Pipefitters; Steamfitters; Boilermakers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Sheet Metal Worker – Manufacturing - Defense (EB Partnership)	Career Cluster	Manufacturing
CIP Code	48.0506	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At least three consecutive years of Sheet Metal Coursework</p> <ul style="list-style-type: none"> • NCCER Core • NCCER Level 1, 2, & 3 • Sheet Metal 3 • First Aid Coursework <p>NCCER Level 1:</p> <ul style="list-style-type: none"> • Module 1 – Introduction to the Sheet Metal Trade • Module 2 – Tools of the Trade • Module 3 – Introduction to the Sheet metal Layout and Processes • Module 4 – Trade Math One <p>NCCER Level 2:</p> <ul style="list-style-type: none"> • Module 1 – Trade Math Two • Module 6 – Bend Allowance <p>NCCER Level 3:</p> <ul style="list-style-type: none"> • Module 4 – Louvers, Dampers, and Access Doors 		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	<p>Completers would need ALL of the following:</p> <ul style="list-style-type: none"> • OSHA 10 • HBI Certificate (Units 1-5) mandatory • Unit #14 HVAC Construction Technology (specific HBI) 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	CTSO: SkillsUSA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Relevant Math; Basic Operational Techniques
Occupations within this Standard:	Assemblers and Fabricators; Metal and Plastic Machine Workers; Sheet metal; Boilermakers; Glaziers; Heating, Air Conditioning, and Refrigeration Mechanics and Installers Insulation workers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Technician Standard (Draft only)	Career Cluster	Manufacturing
CIP Code	15.03	GWB Priority Sector	Yes
Academic Content			
<ul style="list-style-type: none"> • Four years of math including pre-calculus • Chemistry • Physics 			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Three consecutive years of engineering technology coursework		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Safety training content equivalent to OSHA 10 AND At least one of the following: <ol style="list-style-type: none"> 1. (NOCTI) - Pre-Engineering 2. International Society of Certified Electronics Technicians 3. (ISCET): AC, DC, Semiconductor & Digital 4. Electronic Technician Association: AC, DC, Analog, Digital & Comprehensive 5. Project Lead the Way: Three consecutive PLTW Course certificates (including Intro to Engineering design, and Principles of Engineering) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)			

Skills & Knowledge for Entry Level:	Assist engineers or scientists in creative tasks such as aiding in product or tool design, setting up experiments, running experiments, recording data and observations, summarizing results, diagnosing flaws, conducting testing, conducting repairs, programming equipment, setting up production equipment and processes, designing tooling, assessing, and controlling quality, etc.
Occupations within this Standard:	
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Welder – Entry Level – Manufacturing - Defense (EB Partnership)	Career Cluster	Manufacturing
CIP Code	48.0508	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>At least three consecutive years of Welding coursework;</p> <ul style="list-style-type: none"> • NCCER Core and • NCCER Level 1 • NCCER Level 2 <p>OR</p> <ul style="list-style-type: none"> • AWS Sense curriculum <p>All schools must do the minimum instruction required to attain AWS SENSE Level 1 Certification (Minimum estimated instructional hours: 135)</p> <p>NCCER Core Model #7 Communication Skills & #8 Employability Skills</p> <p>NCCER Level 1: Module 1 – Safety Module 2 – Oxy Fuel Module 3 – Plasma Module 6 – Weld Quality</p> <p>NCCER Level 2: Modules 1 & 2 – Symbols and Drawings Modules 5 & 6 – GMAW and GMAW-Plate (Short and Spray) (Minimum estimated instructional hours: 140)</p> <p>Add on to the AWS curriculum for additional credentials NCCER Level 1: Module 4 Carbon Arc</p>		

	Module 5 Mechanical Oxy Fuel Modules 7, 8, 9, and 11 SMAW NCCER Level 2: Modules 5 and 7 – FCAW Modules 5 & 6 GMAW Plate (Pulse) = EB Credential Modules 8 & 9 – GTAW (Minimum estimated instructional hours: 270)
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Completers would need the following: <ol style="list-style-type: none"> 1. OSHA10 Maritime AND -American Welding Society Sense (AWS) 2. Level 1 GMAW Cert (optional) 3. EB GMAW-Pulse 4. SENSE Level 1 SMAW 5. SENSE Level 1 FCAW
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: General Dynamics Electric Boat, New England Institute of Technology, Community College of Rhode Island Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Physics CTSO: SkillsUSA
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Safety; Relevant Math; Basic Operational Techniques; Quality Control; Human Relations
Occupations within this Standard:	Welders; Assemblers & Fabricators; Shipfitters; Boilermakers; Plumbers, Pipefitters, and Steamfitters; Sheet metal workers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

US Dept. of Labor (USDOL) Career Cluster:
Science, Technology, Engineering, and Mathematics (STEM)

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Pre-Engineering	Career Cluster	STEM
CIP Code	14.01__; 14.____	GWB Priority Sector	Yes
Academic Content			
Required Courses: Pre-Calculus, Physics, Chemistry			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Project Lead The Way: three consecutive PLTW courses:</p> <ul style="list-style-type: none"> • Engineering Essentials or Introduction to Engineering Design • Principles of Engineering or PLTW courses linked (listed below) <p>PLTW Engineering Course Sequence Options:</p> <p>3 Consecutive PLTW Courses from the following:</p> <ul style="list-style-type: none"> • Engineering Essentials (EES) • Introduction to Engineering Design (IED) • Principles of Engineering (POE) • Civil Engineering and Architecture (CEA) • Digital Electronics (DE) • Computer Integrated Manufacturing (CIM) • Environmental Sustainability (ES) • Aerospace Engineering (AE) • Engineering Design and Development (EDD) • PLTW Capstone (currently in Beta) <p>Non-PLTW course sequence options :</p> <ul style="list-style-type: none"> • AP Coursework linked (listed below) • Pre-Engineering • Physics, Pre-Calculus • Chemistry • Computer Aided Design • Calculus • Statistics • Electrical Engineering • Computer Programming 		

Culminating CTE Credential(s)

**Note: Include each credential bundle option on a separate line, if applicable*

Students will accomplish a combination of 3 or more of the following. Multiple distinct credentials accomplished from the same category may be counted:

1. **Accomplished or better designations earned on any End-of-Course PLTW assessment**
2. **Earning certification in a design software or programming language that is recognized by industry (listed below)**

Software Credential Options

- Computer-Aided Design Software
 - Autodesk Certified User in
 - Autodesk AutoCAD
 - Autodesk AutoDesk Inventor
 - Autodesk AutoDesk Fusion 360
 - Autodesk AutoDesk Revit
 - Autodesk AutoCad Civil 3D
 - Onshape
 - Onshape Certified Professional
 - Onshape Associate User
 - PTC Creo
 - Creo Fundamentals
 - Creo Professional
 - Solidworks
 - Certified Solidworks Associate Exam
 - Mechanical Design Academic Exam

Computer-Aided Manufacturing Software

- MasterCam
 - Core Certification
 - 2D Mill Certification
 - 3D Mill Certification
- Solidworks
 - Certified Solidworks Professional CAM
 - Certified Solidworks Associate Exam – Additive Manufacturing

Equipment

- FANUC Operator 1
- FANUC Technician 1

Electric Modeling

- National Instruments MultiSim
- Altium Designer
- Altium CircuitMaker
- Fusion 360
- Autodesk Eagle
- KiCad
- SolidWorks Electrical

Additional Software

- GIS
 - arcGIS desktop Associate
 - arcGIS desktop Professional

3. [Earning a Programming certificate linked here](#) (listed below)

Computer Programming Certifications

- PCEP – Certified Entry-Level Python Programmer
- Oracle Certified Foundations Associate
- Java Certification C++ Certified Associate Programmer (CPA)
- C Programming Language Certified Associate (CLA)
- Certified MATLAB Associate
- **OR** College Credit in a Computer Science / Programming **and** PLTW Digital Electronics Course Proficient or Above.
- **OR** Digital Electronics Certification from ISCET or ETA
- **OR** College Credit in a Digital Electronics course
- <https://certiport.pearsonvue.com/Certifications/ITSpecialist/Certification/Certify>

4. [AP Credit \(Score of 3 or higher\) in courses linked here](#) (listed below)

AP Courses with an Exam Grade of 3 or Higher

- AP Calculus AB
- AP Calculus BC
- AP Physics 1
- AP Physics 2
- AP Physics C Electricity
- AP Physics C Mechanics
- AP Computer Science A

- AP Computer Science Principles
- REC Foundation Robotics Certification

5. College Credit (B or Higher) in courses linked here (listed below)

College Courses - 101 Level Courses or Higher with a B or higher in

- Calculus
- Physics
- Computer-Aided Design
- Engineering Principles
- Digital Electronics
- CCRI ENGR 1020 - Introduction to Engineering and Technology
- CCRI ENGR 2320 - Digital Electronics
- URI CSC 106 - The Joy of Programming
- URI CSC 101 - Computer Concepts
- URI CSC 211 - Object Oriented Programming
- URI CSF 102G - Cyber Security Technology
- REC Foundation Robotics Certification

New England Tech Courses (listed below)

PLTW Course	NEIT Major	NEIT Equivalency	Credits
Introduction to Engineering Design	Mechanical Engineering Technology	ENG118 - Introduction to Engineering Technology	3
	Electrical Engineering Technology	ENG118 - Introduction to Engineering Technology	3
Engineering Design and Development	Mechanical Engineering Technology	MCT113 - Design Principles	3
Computer Integrated Manufacturing	Mechanical Engineering Technology	MCT125 - Manufacturing Processes	4
Civil Engineering and Architecture	Civil Engineering Technology	ABT111 - Introduction to Building Science	1
	Architectural Building Engineering Technology	ABT111 - Introduction to Building Science	1
	Interior Design	ABT111 - Introduction to Building Science	1

Credit is given for a grade of B or better in the course

	6. NOCTI Pre-Engineering 7. Precision Exams Engineering Principles I and II
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Program Specific Work-Based Learning Notes: <ul style="list-style-type: none"> • Impactful Pre-Engineering WBL activities include industry-focused capstone projects, engineering internships, entrepreneurial explorations including the production of a minimum viable product (MVP), and interim on-premise or virtual job shadowing when internships are not practical. WBL activities should provide students with opportunities to apply the skills they have learned within their pre-engineering CTE programs to solve a relevant engineering problem. These activities should provide real-world context to their intellectual understandings and contribute to their development of a practical engineering skills. • Programs are encouraged to tailor their plan's WBL activities to the unique resources available within their communities which will provide the greatest educational and experiential benefit to their students. Activities should be structured to provide students with direct exposure to a variety of real-world professional engineering scenarios while also facilitating the deep exploration of one or more engineering projects focused on solving customer problems. • Note that while the above WBL activity plan does not include internships, service-learning projects, or school-based enterprises, these activities are encouraged in addition to industry projects when they provide for a diversity of work-based engineering experiences to students. A senior capstone engineering project with an industry partner is strongly encouraged for pre-engineering programs. This project should facilitate a deep exploration of a real-world engineering problem with at least 30 hours of dedicated effort. Alternative WBL activities such as high-engagement internships with similar depth and educational value will be considered as an acceptable alternative for senior capstone projects when compelling justification is made. Up to 10 WBL activity hours may be earned through student participation in project-based engineering competitions such as FIRST robotics. These hours must include regular interface with an industry mentor to ensure the appropriate level of rigor and context to provide a representative work-based project experience.
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Courses: AP calculus, statistics, physics, chemistry, engineering, or computer science OR coursework focused on building proficiency with industry standard digital engineering tools. Post-Secondary Partnerships: <ul style="list-style-type: none"> • CCRI - Complimentary to CCRI's Engineering and Engineering Technology/Electrical programs: https://www.ccri.edu/engt/courseoutcomes/ENGR.html

	<ul style="list-style-type: none"> • URI - Complimentary to URI's Computer Engineering degree-granting programs: https://web.uri.edu/catalog/computer-engineering/ <p>CTSO: Skills USA; TSA</p> <p>Other Related Student Activities: First Robotics, Vex Robotics</p> <p>Optional Courses - see linked VEX V5 STEM Labs (free) – VEX V5 STEM Labs include Over 65 hours of instruction (13 lessons) on Math, Science, Engineering, and Programming topics. All the lessons include Objectives, Materials, and Standards, as well as necessary teacher lesson plans for the classroom. Has been crosswalked with PLTW.</p> <p>NASA (free) – Find resources to support your STEM curriculum, professional development opportunities to expand your knowledge base, and contests to engage students.</p> <ul style="list-style-type: none"> • NASA Educational Resources • Space History • Timeline of Space Events • All Topics A-Z • Defining Events in NASA History, 1958-2006
<p>Skills & Knowledge for Entry Level:</p>	<p>Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative</p> <p>Students are expected to be able to:</p> <ul style="list-style-type: none"> • apply knowledge of mathematics, science, and engineering • design and conduct experiments, as well as to analyze and interpret data • design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social political, ethical, health and safety, manufacturability, and sustainability • function on multidisciplinary teams • identify, formulate, and solve engineering problems; understand professional and ethical responsibility • communicate effectively • understand the impact of engineering solutions in a global, economic, environmental, and societal context • recognize the need for, and an ability to engage in lifelong learning

	<ul style="list-style-type: none"> • use the techniques, skills, and modern engineering tools necessary for engineering practice
Occupations within this Standard:	Aerospace Engineers; Agricultural Engineers; Biomedical Engineers; Chemical Engineers; Civil Engineers; Computer Hardware Engineers; Electrical and Electronic Engineers; Environmental Engineers; Health and Safety Engineers; Industrial Engineers; Marine Engineers and Naval Architects; Materials Engineers; Mechanical Engineers; Mining and Geological Engineers; Nuclear Engineers; Petroleum Engineers
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Entry-Level Computer Engineer	Career Cluster	STEM
CIP Code	15.0613	GWB Priority Sector	Yes
Academic Content			
<p><i>*Note: Include additional academic requirements here, if applicable</i></p> <p>Math: Pre-calculus curricula should be aimed to prepare students for college-level calculus during their first year of post-secondary education. Programs are encouraged to provide students with access to AP Calculus AB and/or BC as is appropriate.</p> <p>Science: Including at least Physics and Chemistry</p> <p>Additional Courses: AP calculus, statistics, physics, chemistry, engineering, or computer science OR coursework focused on building proficiency with industry standard digital engineering tools</p> <p><u>ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements.</u></p>			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>PLTW Sequence</p> <p>PLTW Computer Science Principles, PLTW Digital Electronics, PLTW Computer Science A</p> <p>Non PLTW Programs must select a minimum of three courses from below.</p> <p>AP Computer Science Principles</p> <p>Computer Engineering</p> <p>Electronics & Computer Science</p> <p>Digital Electronics</p> <p>AP Computer Science A</p>		

<p>Culminating CTE Credential(s)</p> <p><i>*Note: Include each credential bundle option on a separate line, if applicable</i></p>	<p>PLTW Computer Science Principles and Computer Science A Course Completion Certificates</p> <p>OR</p> <p>Credentials outlined on linked Document</p>
<p>Work-based Learning</p> <p><i>*Note: Include specific WBL activities, if applicable</i></p>	<p>80 hours over the course of four years. Internships, externships, and industry projects are preferable work-based learning activities within Computer Engineering programs.</p> <p>Industry projects should include direct interaction with an industry mentor providing students with an opportunity to apply their skills in service of solving a real-world engineering problem. Work-based learning activities should build in depth and complexity, ideally culminating with an industry-led capstone engineering project.</p>
<p>Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)</p>	<p>The following secondary credentials aid in ensuring students are workforce ready:</p> <ul style="list-style-type: none"> *Microsoft Azure Fundamentals OR *Microsoft Azure AI Fundamentals OR *AWS Certified Cloud Practitioner OR *AWS Certified Machine Learning – Specialty OR *CompTIA IT Fundamentals certification OR *IPC Surface Mount Technology Standards certifications OR *DC Electronics Certification from ISCET, ETA, or another approved industry provider <p>College Board’s AP Computer Science courses:</p> <ul style="list-style-type: none"> *AP Computer Science Principles *AP Computer Science A

	<p>Post-Secondary Partnerships:</p> <p>University of Rhode Island: Concurrent enrollment opportunities for Computer Science coursework. Complimentary to URI's Computer Engineering degree-granting programs: https://web.uri.edu/catalog/computer-engineering/</p> <p>Community College of Rhode Island: Potential opportunities for concurrent enrollment. Requires discussion between parties. Complimentary to CCRI's Engineering and Engineering Technology/Electrical programs:</p> <p>https://www.ccri.edu/engt/courseoutcomes/ENGR.html</p> <p>CTSO: TSA SkillsUSA</p>
Skills & Knowledge for Entry Level:	<p>Upon successful completion of the program, candidates are expected to know and be able to:</p> <p>Write computer programs to solve numerical and nonnumerical problems.</p> <p>Problem specification, solution design, and algorithm development.</p> <p>Computer programming concepts: Data types, functions, iteration, recursion, object-oriented programming, functional programming, built-in data structures, file operations, numerical and string-based operations.</p> <p>Use Excel to plot, analyze, and interpret engineering data.</p> <p>Electronic circuit breadboard and diagnostics.</p> <p>Digital electronics concepts: logic gates, Boolean algebra, flip-flops, timing diagrams, state diagrams, counters, and registers.</p> <p>DC electronics concepts: Ohm's law, Kirchhoff's laws, operational amplifier circuits, diodes, transistors, and resonance.</p> <p>Electronic schematic reading, computer-aided design, and circuit simulation.</p> <p>Bits and binary representations.</p>

	<p>Computer network and network security basics.</p> <p>Familiarization with computer and microprocessor software and hardware.</p>
Occupations within this Standard:	<p>Software Engineer</p> <p>Software Developer</p> <p>Computer Programmer</p> <p>Computer Hardware Engineer</p> <p>Electrical Engineer</p> <p>Embedded Systems Engineer</p> <p>Systems Engineer</p> <p>Electronics Engineer</p> <p>Biomedical Engineer</p> <p>Electronics Engineering Technician</p> <p>Electronics Assembly Technician</p>
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Entry-level Engineer Technologist	Career Cluster	Pre-Engineering
CIP Code	15.0613	GWB Priority Sector	Yes
Academic Content <p><i>*Note: Include additional academic requirements here, if applicable</i></p> <p>Math: Pre-calculus curricula should be aimed to prepare students for college-level calculus during their first year of post-secondary education. Programs are encouraged to provide students with access to AP Calculus AB and/or BC as is appropriate.</p> <p>Science: Including at least Physics and Chemistry</p> <p>Additional Courses: AP calculus, statistics, physics, chemistry, engineering, or computer science OR coursework focused on building proficiency with industry standard digital engineering tools</p> <p><u>ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements.</u></p>			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Non PLTW Schools At least three years of Manufacturing related courses: Introduction to Engineering Design/CAD, Computer Integrated Manufacturing/CAM: Virtual, Augmented, Mixed Reality, Industrial Robotics, Drone Technology Course</p> <p>Project Lead The Way: Three consecutive PLTW courses ‘ Courses as approved by PLTW: Introduction to Engineering Design/CAD, Computer Integrated Manufacturing/CAM, Engineering Essentials, Introduction to Engineering Design, Principles of Engineering or PLTW courses released by PLTW</p>		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<p>Students will accomplish a combination of 3 or more of the following to be considered Program Completers. Multiple distinct credentials accomplished from the same category may be counted towards this requirement.</p> <ol style="list-style-type: none"> 1. Accomplished or better designations earned on any End-of-Course PLTW assessment 2. Earning certification in a design software or programming language that is recognized by industry linked here 3. Earning a Programing Certificate linked here 4. AP Credit (Score of 3 or higher) in courses linked 5. College Credit (B or Higher) in courses linked 6. NOCTI Pre-Engineering 7. Precision Exams Engineering Principles I and II <p>Criteria will be verified on the high school transcript upon completion</p>		

Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	80 Hours of Internship, Service Learning, Industry Based Project, Apprenticeship or School-Based Enterprise in the four years
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Coursework: Physics CTSO: TSA SkillsUSA Work-Based Learning: Internship, School-based enterprise, service learning, industry based projects Robotics education, artificial intelligence, internet way, manufacturing
Skills & Knowledge for Entry Level:	<p><i>Upon successful completion of a RIDE approved Pre-Engineering pathway, the candidate is expected to know and be able to:</i></p> <ul style="list-style-type: none"> Problem Solving Professionalism Collaboration Critical Thinking Communication Creativity Flexibility Initiative Safety (OSHA 10) Read blueprints, sketches, or computer-aided design (CAD) and computer-aided manufacturing (CAM) files Set up and operate computer numerically controlled (CNC) machine tools Align, secure, and adjust cutting tools and workpieces Monitor the feed and speed of machines Turn, mill, drill, shape, and grind machine parts to specifications Measure, examine, and test completed products for defects Smooth the surfaces of parts or products Present finished workpieces to customers and make modifications if needed
Occupations within this Standard:	<ul style="list-style-type: none"> Electro-mechanical/Mechatronics Technologists & Technicians Robotics/Mechatronics Engineer Industrial Engineering Technologists and Technicians Industrial Engineer CNC Tool Programmers Aerospace Engineering Technologists and Technicians Civil Engineering Technologists and Technicians Drafters Electrical and Electronic Engineering Technologists and Technicians Electro-Mechanical and Mechatronics Technologists and Technicians Environmental Engineering Technologists and Technicians Industrial Engineering Technologists and Technicians Mechanical Engineering Technologists and Technicians

	Surveying and Mapping Technicians
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.

US Dept. of Labor (USDOL) Career Cluster:
Transportation, Distribution, and Logistics

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Automotive Body Repair Technician	Career Cluster	Transportation, Distribution, and Logistics
CIP Code	47.06__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Automotive Collision coursework consisting of: <ul style="list-style-type: none"> • Automotive Collision 1 • Automotive Collision 2 • Automotive Collision 3 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Credentials: <ol style="list-style-type: none"> 1. I-Car Level 1: 2. I-Car Pro Level 1 Refinish 3. I-Car Pro Level 1 Non-Structural 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Curriculum: I-Car – Collision Repair Curriculum for Career and Technical Schools. The curriculum is aligned 376 hours ASE standards Postsecondary Partnerships: Mass Bay CC, New England Institute of Technology, Central Maine CC, UTI, MTTI, UNOH, Lincoln Tech Complementary Coursework: SP2 collision safety and pollution prevention, I-CAR Professional Development Program Non-Structural and Refinishing, Mitchell 1: Automotive Repair Software/Estimating CTSO: SkillsUSA Recommended Credentials: SP2 collision safety and pollution prevention, ASE, I-CAR Refinish and Non-Structural ProLevel 1, MACS 609; OSHA 10; Any industry credentials approved by program advisory board		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Review damage reports, prepare cost estimates, and plan work; Adaptability; specifically with techniques, products, timeline, requests, and		

	<p>technology; Knowledge of and be able to perform panel removal, installation, and alignment of non-structural mechanically fastened body panels, bolted on, such as fenders, bumpers, hoods, doors, trunk lids, and various trim located on the vehicle body; Inspect and diagnose cars for structural damage; Knowledge of and be able to perform the repairing of dents using various repair methods, including using hammers and dollies, weld on dent removal tools, adhesive dent removal tools, and body picks; Fit, attach, and weld replacement parts using proper procedures; Knowing how to and be able to apply refinishing materials, which includes repairing damaged coatings, applying, and sanding primers, and masking panels for refinishing; Know what refinish materials should be applied depending on the stage of the repair process and how to mix refinish materials for application; Knowing how to create and read a paper and an electronic estimate; Following proper masking and prepping procedures before refinishing of body panels; Following proper welding personal safety procedures; Know how to and be able to perform welder set up to show proper welding procedures; Know how to perform the three most common welds used in the collision repair industry: Lap, plug, and butt with backing; Know how to prevent corrosion and application of anti-corrosive materials after repairs; Know how to and be able to properly maintain refinishing equipment such as spray guns, panel stands, and spray booths</p>
Occupations within this Standard:	<p><i>Non-structural body repair technician:</i> Detailer; Auto recycling center dismantler Automotive Air Conditioning Mechanic <i>Refinish technician:</i> Prepper; technician <i>Welders:</i> Steel and aluminum <i>Estimator:</i> In collision repair shop; Licensed Insurance adjuster; Independent or specific insurance company; <i>Collision specific supply salesperson:</i> Jobber- supplies and stocks paint and body repair materials; Part distributor; Oem Part; Aftermarket Parts <i>Collision Repair Educator:</i> Postsecondary; Secondary; Manufacturer Trainer</p>
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Automotive Service Technician	Career Cluster	Transportation, Distribution, and Logistics
CIP Code	47.06__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Automotive coursework completed in succession, consisting of at least three years in the auto program. Including: Level 1, 2, and 3 (and 4, if applicable)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	ASE Entry Level Certification		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Course: Diesel and Hybrid Technology Credentials: <ul style="list-style-type: none"> • SP2 Safety/Pollution • ALI Lift Certification • 609 Certification • OSHA 10 (optional) • And/or any industry credentials approved by program advisory board Postsecondary Partnerships: Mass Bay CC, New England Institute of Technology, Central Maine CC, UTI, MTTI, UNOH, Lincoln Tech CTSO: Skills USA Complementary Coursework: SP2 Safety/Pollution, AllData Service Information, Mitchell 1: Automotive Repair Software, Ford ACE Program		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration, Works well in teams; Critical Thinking; Detail oriented; Communication skills; specifically with service staff, parts staff, and customers; Writing, Research and Data Skills; Creativity; Knows and follows OSHA and EPA guidelines for environmental and shop safety; Knows how to safely use shop equipment such as vehicle lifts, jacks, tire machines, and major shop equipment as it pertains to the automotive field; Performs work as outlined on repair order with		

	efficiency and accuracy, in accordance with dealer, shop and factory standards including the ability to perform but not limited to basic vehicle services such as oil changes, tire rotations, brake flush, coolant flush, perform tire inspection, repair or replacement, inspect vehicles for safety concerns and worn components, able to inspect and replace common wear items such as filters, belts and hoses, braking system repairs, steering and suspension repairs, basic engine repairs, basic electrical diagnosis and repair, have an understanding of on board diagnostic, emission, fuel and ignition system operation and basic repairs, able to repair common drive train components; Adaptability; Knowledge of looking up service information, technical bulletins, and updated service
Occupations within this Standard:	Aircraft and Avionics Equipment Mechanics and Technicians; Customer service representatives; Motorcycle equipment mechanics and technicians; Diesel Service Technicians and Mechanics; Heavy Vehicle Equipment Service Technicians; Mobile Equipment Service Technicians; Small Engine Mechanics Welding; Tow Truck Operator; Automotive Educator/Trainer; Industry Recognized "A" Level Automotive Technician; RI Certified Inspection Repair Technician; ASE Master Technician; OE Factory Senior Technician; Engine Performance Specialist; Engine Machinist; Diesel Mechanic; Fleet Mechanic; Electrical Specialist/Transmission Specialist; Industry Recognized "B" Level Automotive Technician; Undercar Mechanic; Wheel Alignments; Brake Repairs; Suspension Service and Repair; Steering Service and Repair – battery/alternator Technician; Auto and Truck Equipment Installer; RI Safety & Emissions Inspector; Industry Recognized "C" Level Automotive Technician; Pre-delivery Inspection Technician; Lube Technician- Tire Technician; Multi-point Inspection Technician; Vehicle Accessory Installer; Marine Equipment Mechanics; Shop Foreman; Service Manager; Service Advisor
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Parts Specialist	Career Cluster	Transportation, Distribution, and Logistics
CIP Code	47.00__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Automotive coursework completed in succession, consisting of at least three years in the auto program. Including: Level 1, 2, and 3 (and 4, if applicable)		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	<ul style="list-style-type: none"> • ASE Entry Level Certification • SP2 Safety/Pollution • ALI Lift Certification • 609 Certification • OSHA 10 (optional) 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Mass Bay CC, New England Institute of Technology, Central Maine CC, UTI, MTTI, UNOH, Lincoln Tech Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): SP2 Safety/Pollution, AllData Service Information, Mitchell 1: Automotive Repair Software, Ford ACE Program CTSO: Skills USA Recommended Credentials: OSHA 10, SP2, NOCTI, 609 Cert, ASE		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Computer Skills; Handles counter for retail customers as well as technicians; Promptly and professionally answers phone inquiries; Ensures accurate and appropriate inventory and billing controls through transactions; Demonstrates a positive, helpful attitude as well as professional conduct and appearance at all times; Strong verbal communication skills; Experience in Microsoft Office; Strong work ethic and an ability to work independently; Strong time management and organizational skills; Point of sale/financial skills		

Occupations within this Standard:	Wholesale Parts Manager; Distribution Warehouse Manager; Aftermarket Parts Sales Representative; Internet Parts Sales Representative; Parts Sales/District Manager; Parts Counter Sales Representative; Automotive Recycler (salvage yard) Clerk Operator; Shipping and Receiving Clerk; Parts Delivery Driver; Parts Warehouse Attendant; Parts/Sales Trainer
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Service Advisor	Career Cluster	Transportation, Distribution, and Logistics
CIP Code	47.00__	GWB Priority Sector	Yes
Academic Content			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Automotive coursework completed in succession, consisting of at least three years in the auto program. Including: Level 1, 2, and 3 (and 4 if applicable)		
Culminating CTE Credential(s)	ASE Entry Level Certification		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Credentials: <ul style="list-style-type: none"> • SP2 Safety/Pollution • ALI Lift Certification • 609 Certification • OSHA 10 Curriculum: CDX (Jones and Bartlett); Electude; Today's Class or a curriculum that is aligned to ASE standards for program certification level and contact hours. Postsecondary Partnerships: Mass Bay CC, New England Institute of Technology, Central Maine CC, UTI, MTTI, UNOH, Lincoln Tech CTSO: Skills USA		

Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative; Computer Skills; Point of sale/Financial/Estimates; Broad knowledge of vehicle technology; Excellent customer service skills; Ability to be analytical and multi-task; Ability to work with little supervision; Self-motivated enthusiastic presence in a team environment; Strong written and communication skills; Valid driver's license and clean driving record; Professional appearance and work ethic
Occupations within this Standard:	Service Manager; Service Operations Manager; Automotive Sales Consultant; Automotive Product and Technology Consultant; Warranty Claim Administrator; Automotive Insurance Adjuster; Finance and Insurance Manager; Internet Marketing Director; Social Media Coordinator
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

P-Tech Standards

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Innovation (Newport)	Career Cluster	P-Tech - Cybersecurity
CIP Code	43.0404	GWB Priority Sector	Yes
Academic Content			
<p>*Note: Include additional academic requirements here, if applicable</p> <p>Math: Algebra 1; Geometry; Algebra 2; Pre-Calculus</p> <p>ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements.</p>			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<ul style="list-style-type: none"> • COMP 1200 • COMI 1150 • COMI 2037 		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	<ul style="list-style-type: none"> • Precision Exams 21st Century Success Skills • Mentor Assessment of Internship and Project work • College Board AP* Computer Science Principles • Project Lead The Way credential 		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<p>Postsecondary Partnerships: Community College of Rhode Island (CCRI)</p> <p>Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Grades 9-12- CCRI Computer Programming Courses: Intro to Computers CCRI (3 credits), Intro to Database Software CCRI (1 credit), Intro to Spreadsheet CCRI (1 credit) Intro to Microsoft Project (1 credit) Grades 13-14 CCRI Computer Programming Degree (CPRD)</p> <p>CTSO: Skills USA</p> <p>Work-based learning Students in this program have the opportunity to participate in an internship associated with their CTE program. Students in this program have the opportunity to complete industry projects that address real world problems.</p> <p>Credential(s) Identify Course Alignment: CCRI Computer Programming or Networking, Associate Degree</p>		
Skills & Knowledge for Entry Level:	Collaboration skills; Customer-service skills; Listening skills; Problem-solving skills; Communication skills; Writing skill		

Occupations within this Standard:	Information Technology; Project managers; Computer and information Systems Managers; Computer systems analysts; Computer programmers; Software developers, applications; Computer user support specialists; Computer network support specialists
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Innovation (North Providence)	Career Cluster	P-Tech – Health Careers
CIP Code	51.04__; 51.22__; 51.26__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i>			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	<p>Biology, Chemistry, and Human Anatomy. For the advanced student, instead of Human Anatomy, CHEM 103 & 104 where (8) collegiate credits would be earned through our Early Enrollment Program as well as replacing (8) Free Elective College Credits as part of their scope and sequence for Associate Degree in Health Science through CCRI.</p> <p>Up to a minimum of (6) elective courses which may include Visual Arts, Technology, (2) years of a Foreign Language. In addition, CNA and EMT courses if the student opts to receive as part of their high school experience.</p>		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Any course identified in the scope & sequence for the Associate Degree in Health Science. For example, ENGL 1010, PSYCH 2010, BIOL 2201 & 2202. In addition, EEP Collegiate Credit (RIC) in ELA, social studies, science, visual arts, and foreign language, AP Collegiate Credit if a student receives a (3) or higher on specified exam. CNA and EMT courses and certifications as well through Industry Partnerships.		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	<p>Postsecondary Partnerships: CCRI and Industry Partnerships</p> <p>Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): CCRI Scope and Sequence for Health Science</p> <p>Work-based learning – Type and Description: Internships and Industry Based Projects through Mentoring</p> <p>Credential(s) Identify Course Alignment: CCRI Scope and Sequence in Health Science as well as CNA and EMT Certifications</p>		
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Creativity; Flexibility; Initiative		

	All these skills would apply to any health science career cluster. Regardless of the specific occupation, 21st century skills and competencies would center on improving a patient's life, collaborating with families and other medical occupations, providing care, support, and service to patients in need of healthcare providership. All healthcare occupations promote wellness and develop and implement strategies to improve the health of individuals and communities.
Occupations within this Standard:	Health Science clusters can include Physician, Surgeon, Nurse, Dentist, Hospital administrator, Nutritionist, Dietician, Epidemiologist, Pharmacy Technician, Healthcare Communications, Medical Laboratory Technician, Occupational Therapists, Respiratory Therapists, Physical Therapists, Athletic Trainers, Audiologists, CNA's, EMT's, Chiropractors, Laboratory Technicians, Genetic Counselors, Medical Assistants, Phlebotomists, Radiation Therapists, Veterinarians, and more.
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Innovation (PPSD)	Career Cluster	P-TECH – Information Technology
CIP Code	11.10__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
Math: Pre-Calculus			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Coursework: COMI 1420; COMI 1430; COMI 2015 Required Safety Training specific to content Required Curriculum: <ul style="list-style-type: none"> • Project Lead The Way • Other Networking Coursework approved by CTE_BOT IT Advisory • CCRI Computer Programming Degree (CPRD) or Networking Requirements 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Students will earn at least one of the following: <ul style="list-style-type: none"> • Work readiness assessment, such as Precision Exams 21st Century Success Skills • College Credits • Mentor Assessment of Internship and Project work • College Board AP* Computer Science Principles • Project Lead The Way 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i>		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Suggested: CTSO Postsecondary Partnerships: Community College of Rhode Island (CCRI) Complementary Coursework (Chemistry, Geometry, Pre-Calculus, etc.): Grades 9-12- CCRI Computer Programming Courses: Intro to Computers CCRI (3 credits), Intro to Database Software CCRI (1 credit), Intro to Spreadsheet CCRI (1 credit) Intro to Microsoft Project (1 credit) Grades 13-14 CCRI Computer Programming Degree (CPRD) CTSO: Skills USA Work-based learning – Type and Description: Students in this program have the opportunity to participate in an internship associated with their CTE program. Students		

	<p>in this program have the opportunity to complete industry projects that address real world problems.</p> <p>Credential(s) Identify Course Alignment: CCRI Computer Programming or Networking, Associate Degree</p>
Skills & Knowledge for Entry Level:	Collaboration skills; Customer-service skills; Listening skills; Problem-solving skills; Communication skills; Writing skill
Occupations within this Standard:	Information Technology; Project managers; Computer and information Systems Managers; Computer systems analysts; Computer programmers; Software developers, applications; Computer user support specialists; Computer network support specialists
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Innovation (Westerly)	Career Cluster	P-Tech – Manufacturing
CIP Code	14.36__; 15.06__	GWB Priority Sector	Yes
Academic Content			
*Note: Include additional academic requirements here, if applicable			
Math: Pre-Calculus			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Courses: <ul style="list-style-type: none"> PTECH AutoCad (ENGT 1060) Introduction to Manufacturing Process (ETME 1020) Advanced Solid Modeling (ENGT 2090) Required Curricula: <ul style="list-style-type: none"> Completion of a Senior Project Connection of Career exploration and preparation in a pathway area 		
Culminating CTE Credential(s) *Note: Include each credential bundle option on a separate line, if applicable	College Credits		
Work-based Learning *Note: Include specific WBL activities, if applicable	Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.		
Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Concurrent/Dual Enrollment with CCRI/URI/RIC/CMCC CTSO: Skills USA or Technology Student Association		

Skills & Knowledge for Entry Level:	Effort and Engagement; Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Collaboration; Creativity; Flexibility; Initiative; Technology issues and resolution; Lifelong Learner
Occupations within this Standard:	Machinists; Computer controlled Machine Tool Operators; CNC Controlled Machine Tool Programmers; Material Services; Pipe Design/HVAC; Mechanical Designer; Electrical Designer; Structural Designer
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>

Rhode Island CTE Program Industry-Specific Standards			
Career Field	Innovation (Woonsocket)	Career Cluster	P-Tech – Computer Science
CIP Code	11.01__;11.99__	GWB Priority Sector	Yes
Academic Content			
<i>*Note: Include additional academic requirements here, if applicable</i> Math: Pre-Calculus (Optional)			
ELA, Math, Science, and Social Studies/Science must meet all state and local graduation requirements .			
CTE Content Requirements			
CTE Course Sequence (including required curriculum, if applicable)	Courses: Yr 1 [URI CSC106 = CCRI (COMI- 1150] Yr 2 [URI CSC101 = CCRI COMI-1100] Yr 3 [URI CSF102 = CCRI CNVT-1810] and/or Yr 1 PLTW Essentials Yr 2 PLTW Principles Yr 3 PLTW Cyber Required Curricula: <ul style="list-style-type: none"> • PLTW and Specific College Coursework • Connection of career exploration and preparation in a pathway area • Experience in a community-based Internship 		
Culminating CTE Credential(s) <i>*Note: Include each credential bundle option on a separate line, if applicable</i>	Earned At Least One: Dual/Concurrent Enrollment <ul style="list-style-type: none"> • CCRI COMI- 1420 • COMI- 1422 • COMI-1430 		
Work-based Learning <i>*Note: Include specific WBL activities, if applicable</i>	<i>Student must complete 80 hours in any of the following activities: Internship, Apprenticeship, Service-learning project, Industry Project, or School-based Enterprise.</i> <ul style="list-style-type: none"> • 10 Hours Industry Project • 20 Hours Industry Project • 20 Hours Industry Project • Internship • 30 Hours Internship or Industry Project 		

Recommended (not required) CTE Curriculum, Credentials, Courses, Partnerships, and/or Career & Technical Student Organizations (CTSOs)	Postsecondary Partnerships: Concurrent/Dual Enrollment with CCRI/URI/RIC/CMCC CTSO: Skills USA or Technology Student Association
Skills & Knowledge for Entry Level:	Problem Solving; Professionalism; Collaboration; Critical Thinking; Communication; Understand how different network technologies and tools; Interact to form a secure IT network; Configure, verify, and troubleshoot a switch with VLAN & interswitch; Implement an IP addressing scheme and IP Services Identify network security threats; Communication skills; Writing skills
Occupations within this Standard:	Computer Network Architects; Computer and Information Systems Managers; Computer Hardware Engineers; Customer service representatives; Database administrators; Network and computer systems administrators; Web developers; Computer and information systems managers; Help Desk; Computer Support Specialists; Information Security Analysts; Computer Support Specialists
Salary Information:	RI DLT Employment & Wages by Industry
Projected Job Outlook:	RI DLT Occupational Projections
Related Teacher Certification	<i>Educators teaching in these programs must meet RIDE teacher certification requirements. Please see the RIDE website www.ride.ri.gov for more information.</i>