College & Career Accelerator
2025-2026
Program Guide

A collaborative enterprise partnering EdAdvance with higher education institutions, northwestern CT regional K12 school districts, regional business, community and economic interests
Established, 2023

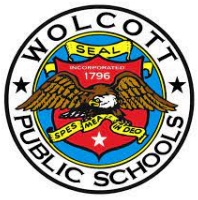
Proudly aligned with our partners in K12, Higher Ed, industry, and government in both our region and across Connecticut.

CONNECTICUT

The Neag Foundation

REGION SCHOOL DISTRICT

THOMASTON Public Schools



CT STATE
COMMUNITY COLLEGE

THE GILBERT SCHOOL

NRWIB

Acknowledgements

The College and Career Accelerator is indebted to our partners, benefactors and community stakeholders who were instrumental in supporting our work in creating this innovative program model. Each participants' perspective and expertise have resulted in a College and Career Readiness initiative that will impact student opportunities and outcomes in Northwest CT and will support regional economic growth for decades to come. We are particularly grateful to the Connecticut State Department of Education, Governor Lamont and Connecticut Chief Manufacturing Officer, Paul Lavoie, for their support and advocacy of our work. Additionally, we are thankful for the NEAG Foundation and the US Department of Education as supporters of our work and vision. We are appreciative of JoAnn Ryan, President and CEO of the Northwest CT Chamber of Commerce and President of the CSCU Board of Regents, who has been a strategic thought partner and advocate both regionally and statewide. We also are thankful for the collaboration and partnership of Cathy Awaad, Executive Director of the Northwest Regional Workforce Investment Board and Rista Malanca, AICP, Director of Economic Development, Northwest Hills Council of Governments. CT State Northwest President, Michael Rooke, PhD, and Dean of Students and Faculty, Jay Whitaker, PhD, have been instrumental partners and collaborators in our model implementation, as have key CT State faculty and department leaders. Finally, we are appreciative to our K-12 district partners who have worked closely with us in designing how best to deliver our opportunities to their students and communities. These partners include Explorations Charter School, Regional School Districts 1, 10, 12, and The Gilbert School, Thomaston Public Schools, Watertown Public Schools, and Wolcott Public Schools. Thank you, all.

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College & Career Accelerator Overview

Mission

The College and Career Accelerator exists to provide customized postsecondary educational and career opportunities for students while still enrolled at their home high school. Collaboratively, with our district partners, we provide programs that are aligned with the interests of students and the workforce needs of local businesses in the Northwest Region and across Connecticut.

Values

1. **Readiness:** Through enrollment in college courses, certificates and / or degrees, and in conjunction with Work Based Learning, students will be prepared to enter the college and career world.
1. **Community:** We provide an innovative and supportive environment where students will explore their interests and potential, while developing essential career skills.
2. **Accessibility:** We provide college credit programs and credentials that increase access to high demand/high salary occupational opportunities as well as allow for greater access to future educational opportunities.

Three Pillars

The College and Career Accelerator stands on a foundation of three pillars that students can expect when engaging with our programming.

1. **Enhanced College Readiness:** Students in the Accelerator can take two to twenty-two college courses while in high school. College Readiness occurs as students find success in our supported and rigorous programming.
2. **Enhanced College Access:** College credits earned in the College and Career Accelerator are eligible to be transferred to many colleges and universities, effectively discounting the cost for students based on the credits that they earn in the program while attending high school.
3. **Enhanced Workforce Readiness:** The Accelerator is directly related to workforce needs of our region and state. Students will earn college and workforce readiness certificates and participate in extensive Career-Connected Learning opportunities, including career readiness courses, internships, and pre-apprenticeships.

The College and Career Accelerator leverages partnerships with higher education and industry to offer high school students intensive and expansive dual enrollment

opportunities that lead to workforce credentials, college Certificates and associate degrees across four broad pathways.

1. Manufacturing and Engineering
2. Education and Early Childhood Education
3. Healthcare
4. Public Safety

These four pathways align with high need areas in Connecticut and our region's economy, while also representing the areas that can offer our students a wide breadth of career opportunities and growth. Our independent and regionally specific variation of the PTech program design has enabled us to flexibly incorporate the needs of our communities, schools, and students to deliver a comprehensive experience that benefits all our stakeholders. To determine these pathway areas, we have collaborated both at the state level and regionally. Statewide, we have worked closely with organizations and groups such as ReadyCT, CCAT, ManufactureCT, our elected state delegates, and the governor's office. Regionally, we have collaborated closely with the NW Chamber of Commerce, Regional Sector Partnerships, the NW CT Economic Development Corp, the NW COG, and several specific industry leaders.

Each of our four pathways is divided into stackable tiers (a progression from shorter-term certificates into more advanced certificates and degrees with overlapping course requirements), providing opportunities for students to enter at any high school grade level, and then have multiple exit points. Students who enter as 9th graders can continue enrollments for all four years of high school, potentially culminating their experiences with an Associate Degree, while certificates and Industry Recognized Credentials (IRCs) can be earned in fewer years.

Our partnership with CT State enables transferability of credits earned through CCA to bachelor's degree programs at many colleges and universities. Courses in CCA may also be articulated through Connecticut public institutions such as UConn, Central CT State University and Charter Oak State College. Credit transferability between these institutions is governed by the Transfer and Articulation Policy (2012) for Connecticut State Universities, and by the Guaranteed Admission Program for the University of Connecticut. CT Guarantee also governs articulations with private colleges and universities in Connecticut.

In conjunction with our partners at the Workforce Investment Board and the NW CT Chamber of Commerce, students enrolled in the College and Career Accelerator will have access to extensive Career-Connected Learning Experiences. Culminating Pre-Apprenticeships and Internships are required in select pathways, and available in others.

Career Readiness and Workforce readiness coursework is embedded throughout program offering, as are job shadows, field trips and classroom presentations by industry mentors.

The College and Career Accelerator is centered at the Regional Learning Center (RLC) in Torrington, CT and will be staffed by credentialed EdAdvance faculty to meet the requirements of our offerings and needs of our students. For our Manufacturing Engineering Pathway, the state-of-the-art site has a Robotics space, a CAD labs, a 3D print lab, a CNC Machining lab, and a space for materials fabrication. Additionally, we have an Education Pathway classroom at the RLC and have space for all our pathways there as well. We also can provide for coursework at our partner school districts and on the campus of CT State-Northwestern campus in Winsted. Fieldwork will occur at regional childcare centers, district school programs and classrooms.

CCA endeavors to customize to meet the needs of our district partners. Care and collaborative planning are integral to ensuring that CCA offerings enhance existing in-district opportunities for students and that CCA supports the strengthening of existing staff capacity. Where capacity and infrastructure exist, a number of CCA courses can be offered at the home campus of students, with in-district faculty teaching courses as dual enrollment credentialed instructors. Program offerings, selection of and scheduling of students, and location of courses will all be done in collaboration with district partners.

Successful completion of each dual enrollment course in CCA requires a final grade of 73 or better. Students who do not earn a grade of at least 73 will not be eligible to progress in the sequence to subsequent courses.

On the following pages you will find a description of each of the College and Career Accelerator's Manufacturing Engineering Pathway, Education Pathway, Public Safety Pathway, and Healthcare as well as the tiers within each pathway. Additionally, you will find course descriptions for each course being offered in these four pathways.

Manufacturing Engineering Pathway

In cohesion with the State of Connecticut Office of Manufacturing, the Manufacturing and Engineering Pathway is designed to align with the strategic initiatives of Connecticut's industry for workforce development, leveraging innovation to ease the strain on labor. See the State of Connecticut Manufacturing Office Strategic Plan here.

Tier 1: Computer Aided Design User (CADU) Certification

Program Description: The Computer-Aided Design (CAD) User Certificate program provides students with the basic training in creating engineering drawing and 3D models of parts. The program uses AutoCAD® and Solidworks® software to provide the students with the basic training they need in the field of computer aided drafting. The program is a steppingstone to seek lower-level mechanical drafting jobs or to continue to obtain the Mechanical CAD certificate.

Learning Outcomes:

1. Create basic engineering drawings
2. Create basic 3D models of parts and assemblies

Tier One Model Course Progression – One Year Program				
Term	Course 1	Course 2	HS Credits	CT State Credits
Semester 1	EGR 1120	CAD 1330	1	6
Semester 2	CAD 2200		.5	3
Total Cumulative Credits			1.5	9

Tier 2: Mechanical Computer Aided Design Certification – This tier will not be offered during the 2025-2026 school year.

Tier 3: Mechatronics Automation Technician Certification – This tier will not be offered during the 2025-2026 school year.

Tier 4: Technology Engineering Education Associate Degree

Program Description:

The rigorous Associate Degree Pathway outcome can be achieved by students entering in 9th grade. As part of the Connecticut College of Technology (COT), the Technology Studies A.S. degree provides the knowledge and skills within specific high-demand technology fields. The program consists of lecture and lab course work in engineering, technology, industrial technology, mathematics, sciences, and foundational requirements that provide a solid comprehensive background for continuation in a four-year technology degree program or entry into the workforce. Upon completion of a Technology Studies A.S. degree, students can transfer to Central CT State University or the University of Hartford to complete designated B.S. degrees.

Learning Outcomes:

- Apply mathematical, scientific and technological principles and concepts to identify and formulate solutions to technical problems.
- Apply critical thinking and problem-solving skills to solve technical problems.
- Demonstrate the ability to function on teams.
- Recognize the need to engage in life-long learning.

***This program of study concurrently meets the requirements of CT graduation, as well as the requirements of Technology Engineering Education Associate Degree.**

Recommended Course Progression (potential modifications available)

*Courses identified on the chart below as credit bearing at both the high school level and at the college level are CCA courses.

Tier Four Model Course Progression – Four Year Program				
Term	Course 1	Course 2	HS Credits	CT State Credits
1st Year				
Semester 1	EGR 1120	CAD 1330	1	6
Semester 2	MFG 1004	CAD 2200	1	6
Summer	MFG 2439		.5	3
1st Year Credits			2.5	15
Total Cumulative Credits			2.5	15
2nd Year				

Semester 1	MFG 1477	SOC 1001	1	6
Semester 2	MFG 1415, OSHA10 / NIMS Additive Manufacturing	ART 1220	.5	1
Semester 2	MAT 0989 ALEKS	MAT 1010	.5	3
Summer	MAT 1010 (as needed)			
2nd Year Credits			4	19
Total Cumulative Credits			6.5	34
3rd Year				
Full Year	HIST 1015			3
Full Year	ENG 1010 / COMM 1301		1	3
Full Year	MATH 1600		1	3
Full Year	CHEM 1110		1	4
Semester 1	MFG 1411	PSY 1011	1	6
Semester 2	MFG 1478	MFG 1479	.5	4
3rd Year Credits			4.5	20
Total Cumulative Credits			11	54
4th Year				
Summer	EGR 2098 (graded in spring semester, can begin as early as July 1)		.5	3
Full Year	ENG 1080		1	3
Full Year	MATH 1200		1	3
Full Year	MATH 1610		1	3
Semester 1	PHYS 1201		.5	3
Semester 1	MFG 2405	MFG 2444	1	6
Semester 2	CCS 1001	MFG 2445	1	6
4th Year Credits			6	27

Total Cumulative Credits	17	81

Tier 5: Manufacturing Engineering Associate Degree

Program Description:

The rigorous Associate Degree Pathway outcome can be achieved by students entering in 9th grade. As part of the Connecticut College of Technology (COT), the Technology Studies A.S. degree provides the knowledge and skills within specific high-demand technology fields. The program consists of lecture and lab course work in engineering, technology, industrial technology, mathematics, sciences, and foundational requirements that provide a solid comprehensive background for continuation in a four-year technology degree program or entry into the workforce. Upon completion of a Technology Studies A.S. degree, students can transfer to Central CT State University or the University of Hartford to complete designated B.S. degrees.

Learning Outcomes:

- Apply mathematical, scientific and technological principles and concepts to identify and formulate solutions to technical problems.
- Apply critical thinking and problem-solving skills to solve technical problems.
- Demonstrate the ability to function on teams.
- Recognize the need to engage in life-long learning.

***This program of study concurrently meets the requirements of CT graduation, as well as the requirements of Technology Engineering Education Associate Degree.**

Recommended Course Progression (potential modifications available)

*Courses identified on the chart below as credit bearing at both the high school level and at the college level are CCA courses.

Tier Five Model Course Progression – Four Year Program				
Term	Course 1	Course 2	HS Credits	CT State Credits
1st Year				
Semester 1	EGR 1120	CAD 1330	1	6
Semester 2	MFG 1004	CAD 2200	1	6
Summer	MFG 2439		.5	3
1st Year Credits			2.5	15

Total Cumulative Credits			2.5	15
2nd Year				
Full Year	HIST 1015		1	3
Semester 1	MFG 1477	SOC 1001	1	6
Semester 2	MFG 1415, OSHA10 / NIMS Additive Manufacturing	ART 1220	.5	1
Semester 2	MATH 0989 ALEKs	MATH 1010	.5	3
Summer	COMM 1301	MATH 1600	1	6
2nd Year Credits			4	19
Total Cumulative Credits			6.5	34
3rd Year				
Full Year	ENG 1010		1	3
Full Year	MATH 1610		1	3
Full Year	CHEM 1110		1	4
Semester 1	MFG 1411	PSY 1011	1	6
Semester 2	MFG 1478	MFG 1479	.5	4
3rd Year Credits			4.5	20
Total Cumulative Credits			11	54
4th Year				
Summer	EGR 2098 (graded in spring semester, can begin as early as July 1)		.5	3
Full Year	ENG 1080		1	3
Full Year	MATH 1200		1	3
Full Year	MATH 2600		1	3
Full Year	PHYS 1201 / 1202		1	8
Semester 1	MFG 2405	MFG 2444	1	6

Semester 2	CCS 1001	MFG 2445	1	6
4th Year Credits			6.5	32
Total Cumulative Credits			17.5	86

Education Pathway

The Education Pathway is designed to support students who are interested in pursuing early childhood certificates as well as working toward their associates degree. The following three tiers reflect the Education Pathway. The locations of the course offerings will be at the high school when the staff is teaching the dual enrollment course, at the Regional Learning Center (RLC) for coursework, local daycare centers and district schools for fieldwork, and at CT State, if proximity permits. EdAdvance is able to provide these options, because they are offering transportation to all CCA learning experiences. The teaching site will be determined by proximity to the students.

- **Tier 1**: The Early Childhood Education Certificate prepares students with a solid basis for working with our youngest learners within a childcare center or pre-K-grade 2 educational setting. Required fieldwork will occur during the course.
- **Tier 2**: Pathway to Teaching Careers Associate's Degree reflects three separate tiers that provide the foundation for an associate's degree and possible future 4-year degree. Through Tiers 2A, 2B, and 2C of the Education Pathway, students can focus on their areas of concentration: early childhood (Pre-K-grade 2), grades 1-6, or grades 7-12 in a specific content/subject area. All courses taken are transferable to a 4-year degree for those who are interested.

***Education Pathway*:**
Tier 1- Early Childhood Education Certificate-24 credits

***Pathway to Teaching Careers*:**
Tier 2A-Early Childhood, Pre-K-grade 2;
Tier 2B-Elementary Education, grades 1-6
Tier 2C Secondary Education, grades 7-12

Tier 1 ECE: Early Childhood Certificate

Pathway to Teaching Careers Associate's Degree (AA)

The curriculum provides a comprehensive general education core, pedagogical practice through field experiences, and a solid theoretical foundation in primary or secondary education. The program of studies prepares graduates for transfer (course by course) to a baccalaureate program, including Connecticut State Universities, and prepares students for employment in inclusive, diverse, and culturally responsive childcare and education settings. This degree program strengthens and enhances professional competencies, skills, knowledge, and employability.

Areas of study in this degree program include the 21st century learning skills, language education (including bilingual), reading, writing, literature, multiliteracies, anti-bias and multicultural education, communication written and oral, creativity and innovation, global awareness, cultural competency, self-directed learning, digital literacies, critical media literacy, STEM, multimodality, special education, teamwork/collaboration, professional growth, curricula, problem-solving, advocacy, the 21st century learning skills, and leadership. In the interaction and interplay of these areas, our students and faculty seek to broaden the scope to meet the needs of all learners in a diverse society.

Field work is a principal instructional method and a requirement in specific program courses. Background checks and fingerprinting are associated with this program of study. Before graduating with an AA degree, Education majors are expected to complete a minimum of 100 hours of observation and/or field work prior to student teaching and at minimum of 200 hours of student teaching.

Learning Outcomes:

Upon successful completion of all program requirements, graduates will:

- Facilitate meaningful opportunities to foster physical, social, emotional, language, cognitive, and aesthetic development for all children from birth through age eight.
- Build, support, and engage family and community relationships through understanding and valuing diversity and all families and knowledge of the community.
- Develop a basic knowledge of and use observation, documentation, and assessment including assistive technology positively and responsibly to describe, discuss, and promote positive outcomes for a child's learning and development including children with developmental delays and disabilities.
- Describe the role of the teacher in the classroom.
- Identify the requirements for teaching based on academic program requirements and state certification requirements.
- Design and deliver a challenging, high quality, twenty-first century curriculum.
- Recognize broader historical, cultural, global and scientific perspectives as they relate to education.
- Demonstrate sound knowledge of the academic disciplines, content areas, and concepts and a board inventory of appropriate teaching approaches and methods.
- Demonstrate professionalism by identifying oneself as an educator; practicing the ethical and legal responsibilities outlined in professional standards; and committing themselves to reflection and evaluation, continuous professional

development, self-advocacy, and advocacy for children, families, and the profession.

Tier 2A: Early Childhood Education Program

The Early Childhood Education (ECED) program is designed to provide students with the skills, knowledge, and competencies necessary for effective teachers of all young children from birth through age eight in the 21st century. This is specifically designed for students interested in working with preschool through grade 2 learners.

The degree program and ECED courses are aligned with the following standards: CT State Core Knowledge and Competencies (CKC), Division of Early Childhood of the Council for Exceptional Children (DEC), Early Intervention/Early Childhood Special Education (EI/ECSE), National Association for the Education of Young Children (NAEYC), and Office of Special Education Programs (OSEP).

Tier 2A Model Course Progression – Four Year Program				
TERM	Course 1	Course 2	HS Credits	CT State Credits
1st Year				
Semester 1	EDL115 (CCSU Course)		.5	3
Semester 2	COMM1301		.5	3
		1st Year Credits	1	6
2nd Year				
Semester 1	ECED 2825		.5	3
Semester 2	ECED 1002		.5	6
		2nd Year Credits	1.0	9
		Total Cumulative Credits	2.0	15
3rd Year				
Summer	ECED 2875		.5	3
Summer	ENG 0960, (or Accuplacer)		0-.5	0

Full Year	ENG 1010		1	3
Full year	ENV SCI 1010 or BIO 1110		1	3
Semester 1	ECED 2331		1	6
Semester 2	ECED 2515		.5	3
		3rd Year Credits		
		Total Cumulative Credits		
4th Year				
Summer	ECED 1376		.5	3
Summer	ART (Draw 1) 1110 or ART (Ceramics) 1610		.5	3
Full Year	ENG 1020		1	3
Full Year	MATH 1004 or 1200		1	3
Semester 1	PSY 1011	ECED 2410	1	6
Semester 2	CCS 1001	ECED 2322	.5	3
		4th Year Credits		
		Total Cumulative Credits		

***Additional coursework: Student teaching, 6 credits and requires 200 field hours. Possibly post-graduation.**

Tier 2B: Elementary Education Program

The Elementary Education program is designed to provide students with the skills, knowledge, and competencies necessary for effective teachers of education, grades 1-6.

Tier 2B Model Course Progression – Four Year Program				
TERM	Course 1	Course 2	HS Credits	CT State Credits
1st Year				
Semester 1	EDL115 (CCSU Course)		.5	3
Semester 2	COMM1301		.5	3

		1st Year Credits	1	6
2nd Year				
Semester 1	ECED 2825		.5	3
Semester 2	ECED 1002		.5	3
		2nd Year Credits	2	9
		Total Cumulative Credits	3	15
	3rd Year			
Summer	ENG 0960 (or Accuplacer)		0-.5	0
Full Year	ENG 1010		1	3
Full Year	MATH 1004 (Elem Ed Alg)		1	3
Full Year	ENV SCI 1010		1	3
Semester 1	EDUC 2010		.5	3
		3rd Year Credits	3.5-4.0	12
		Total Cumulative Credits	6.5-7.0	27
4th Year				
Summer	ART 1110 (Draw 1) or ART 1610 (Ceramics)		.5	3
Full Year	ENG 1020		1	3
Full Year	MATH 1410 (Elem Ed Geom)		1	3
Full Year	BIO 1100		1	3
Semester 2	CCS 1001		.5	3
		4th Year Credits	2.5	15
		Total Cumulative Credits	9.0-9.5	42

***Additionally, students will need to complete 18 more credits/6 courses in humanities or stem or their chosen focus area.**

Tier 2C: Secondary Program

The Secondary Education program is designed to provide students with the skills, knowledge, and competencies necessary for effective teachers of education, grades 7-12. Students will need to determine their area of concentration and subject area concentration. This will guide their course requirements.

Tier 2C Model Course Progression – Four Year Program				
TERM		Any Grade Level	HS Credits	CT State Credits
1st Year				
Semester 1	EDL115 (CCSU Course)		.5	3
Semester 2	COMM1301		.5	3
		1st Year Credits	1	6
2nd Year				
Semester 1	ECED 2825		.5	3
Semester 2	ECED 1002		.5	3
		2nd Year Credits	2	9
		Total Cumulative Credits	3	15
	3rd Year			
Summer	ENG 0960 (or Accuplacer)		0-.5	0
Full Year	ENG 1010		1	3
Full Year	MATH 1100		1	3
Full Year	ENV SCI 1010		1	3
Semester 1	EDUC 2010		.5	3
		3rd Year Credits	3.5-4	12
		Total Cumulative Credits	6.5-7	27
4th Year				
Summer	ART 1110 (Draw I) or ART 1610 (Ceramics)		.5	3

Full Year	ENG 1020		1	3
Full Year	MATH 1200 or 1600 or 1610		1	3
Full Year	BIO 1100		1	3
Semester 1		CCS 1001	.5	3
		4th Year Credits	4	15
		Total Cumulative Credits	10.5-11	42

***Additionally, students will need to take 18 credits/6 courses in their concentration area.**

Public Safety Pathway

The Public Safety Pathway is designed to align with our community's first responder needs and align with the strategic initiatives of Connecticut's workforce development efforts, leveraging innovation to ease the strain on labor. In this first year (2025-2026) of the Pathway offering, we are pleased to offer a 1 year (3 course) sequence to a certificate in Homeland Security. The Criminal Justice Pathway will expand in subsequent years to include Tiers that award AS degrees in Criminal Justice and Fire Safety, and certificates in First Aid and EMT. Underclass students entering CCA through the Homeland Security Certification (Tier 1) can continue on into those more advanced Tiers in subsequent years.

Tier 1: Criminal Justice: Homeland Security Certificate

Program Description

This certificate offers students an in-depth understanding of the interrelated duties, relationships and issues of the agencies associated with Homeland Security. Upon completion of the certificate, students will be able to identify, describe and analyze security threats as individuals and in coordinated team settings. It is based on a model developed by Global Corporate College and the Transportation Security Administration (TSA). Tunxis partnered with both agencies to offer these three courses to TSA employees. Students with this certificate are more desirable for TSA employment.

Learning Outcomes:

- Demonstrate an in-depth understanding of the interrelated duties, relationships, and issues of the agencies associated with Homeland Security

Model Course Progression

Tier 1 Model Course Progression – One Year Program				
TERM		Any Grade Level	HS Credits	CT State Credits
1 year program				
Summer Pre-requisite	ENG 1010		.5	**3**
Semester 1	CJS 1060	CJS 1580	1	**6**
Semester 2	CJS 2810		.5	**3**
Total Cumulative Credits			2	**12**

Healthcare Pathway

The Health Care Pathway is designed to align with our community's health care needs and align with the strategic initiatives of Connecticut's workforce development efforts, leveraging innovation to ease the strain on labor. In this first year (2025-2026) of the Pathway offering, we are pleased to offer a 4-year sequence that leads to a Medical Assisting Certificate. The Health Care Pathway will expand in subsequent years to include tiers that include Emergency Medical Technician (EMT) and other health care related professions.

Tier 1: Medical Assisting Certificate (MDAS-CC)

The Medical Assisting Certificate prepares students for entry level positions as multi-skilled practitioners, there are career positions available in medical offices, hospitals, hospice care, laboratories, ambulatory care centers, and more. The program provides the student the opportunity to acquire clinical and administrative knowledge and skills in the classroom, the laboratory, and during practicum/externship.

Learning Outcomes

Upon successful completion of all program requirements, graduates will be able to:

- Apply for a national medical assisting certification examination.
- Perform all medical assisting skills at entry level competency.
- Become a professional collaborative member of the health care team delivering safe quality care
- Will show respect, empathy, objectivity, and accuracy with written and verbal communication.

This is not a selective admissions program; however, students must meet course prerequisite requirements to progress in the program. To progress in this program, students must obtain a grade of 'C' or higher in all MED courses.

This program may help prepare students for stackable credentials. With additional experience and/or coursework, students may qualify to take a variety of certification exams. Completion of this certificate can place the student into the Associate Degree program with at least 50% of the credits completed.

The Medical Assistant Certificate Program at Norwalk Community College is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of Medical Assisting Education Review Board (MAERB). Commission on Accreditation of Allied Health Education Programs (CAAHEP): 9355 113th St.

N, #7709, Seminole, FL 33775, Phone: 727-210-2350, Fax: 727-210-2354, www.caahep.org
Medical Assisting Education Review Board (MAERB): 2020 N. California Ave., #213 Suite 7 Chicago, IL 60647, 1-800-228-2262, www.maerb.org

Tier 1 Model Course Progression – Four Year Program				
TERM	Course 1	Course 2	HS Credits	CT State Credits
1st Year				
Semester 1	ENG 1010	MDAS 1025	.5	3
Semester 2	MDAS 1011		.5	3
		1st Year Credits	1	6
2nd Year				
Semester 1	MDAS 1012		.5	3
Semester 2	MDAS 2016		.5	3
		2nd Year Credits	1	6
		Total Cumulative Credits	2	12
3rd Year				
Semester 1	MDAS 1033		.5	4
Semester 2	MDAS 2042		.5	4
		3rd Year Credits	1	8
		Total Cumulative Credits	3	20
4th Year				
Semester 1	MDAS 2050	MDAS 2050L	.5	4
Semester 2	MDAS 2045		.5	4
Post-Graduate Summer	MDAS 2095		0	4
		4th Year Credits	1	12
		Total Cumulative Credits	4	32

Course Descriptions

BIO 1100-Principles of the Human Body
Credits: 3
This non-STEM (Science, Technology, Engineering, and Math) majors natural science course is designed to introduce students to basic principles required to support human life. The cellular nature of life and organization and function of organs and organ systems is emphasized. Students use a variety of resources from readings to media to case studies to acquire and evaluate relevant scientific content. Select body systems and disease states are discussed.

CHEM 1110 - Concepts of Chemistry
Credits: 4
Prerequisite: Eligibility for ENG 1010 AND completion of with a grade of C- or higher in either MATH 1002, MATH 1600, MATH 1010, MATH 1011, MATH 1200, MATH 1201 or course higher than MATH 1600. Placement into a course higher than MATH 1600 in the STEM Mathematics pathway is also acceptable.
Introduction to the fundamental principles and the concepts of chemistry. Atomic structure, periodic relationships, bonding, kinetics, and equilibria are examined to permit their use in understanding chemical reactions though in less detail than in CHEM 1210 and CHEM 1220. The laboratory portion stresses the acquisition of skills in scientifically ethical data gathering and in the manipulation of apparatus and materials. Not a pre-requisite for CHE 2210 Organic Chemistry I.

CAD 1330 - 2D CAD (AutoCAD)
Credits: 3
Pre/Corequisite: EGR 1120
This course's objective is to give the student a basic understanding of Computer Aided Drafting using the latest version of AutoCAD. The student will learn drafting fundamentals for engineering through projects from various technical disciplines. Topics include drawing setup, text, dimensioning, layering systems, blocks, printing, and plotting, orthographic and isometric, and section views as well. Upon finishing this course, students should be able to prepare drawings in their own engineering disciplines.

CAD 2200 - Parametric Design (SolidWorks)
Credits: 3
Prerequisite: None
Introduction to computer-based design using SolidWorks® parametric 3D CAD software. The course focuses on Parametric Modeling and topics include Design Intent and Process, Sketching Techniques, Model Development Techniques, Process-Specific Modeling, Design

Changes, Editing Models, Patterning and Assembly Techniques. Students will participate in mostly individual and some group design projects as appropriate.

CAD 2210 - Advanced Parametrics Design (Solidworks)
Credits: 3
Prerequisite: CAD 2200
A continuation of the first course in Parametric CAD using SolidWorks® and project-based learning. Topics include advanced modeling techniques and tools, with emphasis on surfaces, SimulationXpress, sheet metal development, and top-down assembly techniques.

CAD 2300 - Parametric 3D CAD using NX
Credits: 3
Prerequisite: CAD 1330
This course introduces basic Siemens NX® parametric based solid modeling techniques. Exercises and projects include creating and editing solid models using primitive features, form features and sketches. The course also covers the bidirectional associative nature of the software to demonstrate modifications made in the model to be reflected in the orthographic and auxiliary drawing views and vice versa.

CCS 1001 - College & Career Success
Credits: 3
This non-STEM (Science, Technology, Engineering, and Math) majors natural science course is designed to introduce students to basic principles required to support human life. The cellular nature of life and organization and function of organs and organ systems is emphasized. Students use a variety of resources from readings to media to case studies to acquire and evaluate relevant scientific content. Select body systems and disease states are discussed.

CJS 1060 - Introduction to Homeland Security
Credits: 3
Prerequisite: None
Course Description: An introduction into the fundamental concepts of homeland security, emergency preparedness, and terrorist threats. This course provides an overview of all the important agencies associated with Homeland Security, and their interrelated duties and relationships. A historical perspective of events related to homeland security will also be examined. The principles and practices of emergency planning and management will be emphasized. In addition to technological and transportation implications, the most current and critical threats confronting Homeland Security will be examined.

CJS 1580 - Intelligence Analysis and Security Management
Credits: 3

Corequisite: CJS 1060
Course Description: Examines intelligence analysis and its indispensable relationship to the security management of terrorist attacks, man-made disasters, and natural disasters. It also explores vulnerabilities of our national defense and private sector, as well as the threats posed to these institutions by terrorists, man-made disasters, and natural disasters. Students will discuss substantive issues regarding intelligence support of homeland security measures implemented by the US and explore how the intelligence community operates.

CJS 2810 - Transportation and Border Security
Credits: 3
Prerequisite: CJS 1580
Provides an overview of modern border and transportation security challenges, as well as different methods employed to address these challenges. The course covers the time period post September 11, 2001, to the present. The course explores topics associated with border security and security for transportation infrastructure, to include; seaports, ships, aircraft, airports, trains, train stations, trucks, highways, bridges, rail lines, pipelines, and buses. The course will include an exploration of technological solutions employed to enhance security of borders and transportation systems. Students will be required to discuss the legal, economic, political, and cultural concerns and impacts associated with transportation and border security. The course provides students with a knowledge level understanding of the variety of challenges inherent in transportation and border security.

COMM 1301 - Public Speaking
Credits: 3
Prerequisite: Eligibility for ENG 1010
In this introductory course on Public Speaking students will engage in the process of transmitting ideas and information orally in a variety of situations. Effective oral communication involves generating messages and delivering them with attention to vocal variety, articulation, and nonverbal signals. To be a competent speaker, a person must be able to compose a message and provide ideas and information suitable to the topic, purpose, and audience.

ECED 1001 - Introduction to Early Childhood Education
Credits: 3
This course is designed to acquaint students with the field of early childhood inclusive education. The course will emphasize the importance of ages birth to eight and the part that early care and educational settings play in every child's development including children with disabilities, developmental delays, language, and cultural differences. The course will review theories and philosophies of early care and education and will acquaint students with historical perspectives as well as modern trends, developments, and

curriculum models. The course will explore the organization and composition of early childhood settings; curriculum planning based on Developmentally Appropriate Practices, materials, and equipment; and the role of the teacher including reflective practice. The course includes four, 2.5 hours of preschool classroom observations for a minimum of 10 hours. A minimum of 10 hours of fieldwork is required for this course.

ECED 1002 - Foundations of Child Development
Credits: 3
Corequisite: ENG 1010 or with permission of program coordinator.
This course is concerned with human development from prenatal through elementary education with particular emphasis on the preschool child including children with developmental delays, disabilities, language and/or cultural differences. The early childhood developmental benchmarks through successive stages will be studied in depth. A minimum of 10 hours of fieldwork is required for this course.

ECED 1142 - Fundamentals of Infant and Toddler Care and Education
Credits: 3
Prerequisite: ECED 1002
This course examines curriculum models and the methods and techniques for caring for infants and toddlers. Students will learn ways to interact with and support children under the age of three. Emphasis will be on the learning environment including feeding and routines; responsive, reciprocal, nurturing, relationships; cultural sensitivity, and inclusion. This includes knowledge and skills needed to plan, implement, and evaluate developmentally appropriate curricula for all children birth to three including children with developmental delays, disabilities, language, and/or cultural differences. Topics explored will include how to create routines and organize the environment to support learning, the role of families, as well as creating experiences and interactions to support development in all domains.

ECED 1303 - Creative Arts and Experiences
Credits: 3
Prerequisite: none
This course is designed to study the concept of creativity and the creative process as it applies to art and creative play for all young children including children with disabilities, developmental delays, language and /or cultural differences. Students will explore a wide variety of creative media suitable for use with all young children. Emphasis is given to creative experiences and environments as they impact on the development of all young children.

ECED 1376 - Health, Safety, and Nutrition
Credits: 3

Prerequisite: None
The influence of parents and community on the growth and learning of young children is examined. Various aspects of effective communication with parents concerning health, safety and nutrition issues are discussed. Community resources that benefit young children are also addressed.

ECED 1800 - Child Development Associate (CDA) National Certificate Preparation
Credits: 3
Prerequisite or with permission of program coordinator.: ECED 1001, ECED 1002
This course is designed for childcare providers who wish to obtain a Child Development Associate (CDA) Credential. Students will study the national standards from evaluation and credentialing by the Council of Early Childhood Professional Recognition and become familiar with the Direct Assessment System. Students will examine and review the CDA Competencies and Functional Areas and their integration with early childhood theory and practice. Much of this coursework will assist students in the development of their professional resource file and the completion of other necessary documentation and the final assessment process. Students will prepare to apply for the CDA Credential with one of the following endorsements: center-based preschool, center-based infant/toddler, family day care, or home visitor. This course emphasizes best practices in diversity, equity, and inclusion.

ECED 1801 - Child Development Associate (CDA): Seminar and Fieldwork
Credits: 3
Prerequisite or with permission of program coordinator.: ECED 1001, ECED 1002
This seminar and fieldwork course is designed for childcare providers who are preparing for their Child Development Associate (CDA) Credential through the Council for Professional Recognition in Washington, D.C. under its present requirements. The student will attend a weekly seminar and a minimum of 10 hours of fieldwork in a licensed early childhood setting. This course will assist in the preparation of the required CDA Professional Resource File, the required Classroom Observation and the final assessment process. This course emphasizes best practices in diversity, equity, and inclusion.

ECED 2307 -The Natural Sciences and Young Children
Credits: 3
Prerequisite: ECED 1001 or permission of program coordinator
This course presents pedagogical methods, content, and current research in the field of natural sciences. Emphasis is placed on planning an integrated, inclusive curriculum and creating an environment that stimulates natural curiosity.

ECED 2309 - STEM for Young Children
Credits: 3

This course will review the many positive guidance, behavior management and discipline strategies that are appropriate to be used with all young children including children with disabilities, developmental delays, language and/or cultural differences. Positive guidance approaches that go beyond rules and punishment will be examined. The course will explore how to support all children's social and emotional development including resilience. Self-reflection as a teacher will be stressed. The course will study how the environment affects behavior. Teaching/management styles will be analyzed to identify the best techniques to help guide all children to learn self-control.

ECED 2322-Curriculum and Methods for Diverse Learners
Credits: 3
Prerequisite: None
The study of the methods and techniques needed to plan, implement, and evaluate a developmentally and culturally appropriate, inclusive curriculum. Experiences will focus on the strategies used to design the learning environment; the interactions between and among teachers, children, and families; and the fostering of opportunities to enhance the development of all children including those with disabilities, developmental delays, language, and/or cultural differences. Students will share knowledge, experiences, and skills in a cooperative and supportive environment. A minimum of 25 hours of fieldwork is required for this course.

ECED 2331 - Language Development and Emergent Literacy in Young Children
Credits: 3
Prerequisite: ECED 1001 or ECED 1142 and ECED 1002 or PSY 2004 with permission of program coordinator.
An introduction to language and literacy acquisition and development in the young child. Exploration of the early childhood language arts curriculum includes speaking, listening, writing, and reading skills and the teaching strategies that will support the curriculum. Emphasis on the influence of a child's background and experiences on emerging literacy development will be explored. As will the importance of family partnerships and assessment. This course will address the learning needs of all children including children with disabilities, developmental delays, language and/or cultural differences. Creation of a literacy-rich environment that engages children in developmentally appropriate language arts experiences will be included. A minimum of 5 hours of fieldwork is required for this course.

ECED 2410-Observation, Documentation, and Assessment of Young Children
Credits: 3
Prerequisite: ECED 1001, ENG 1010, and ECED 1002 or PSY 2004
This course is designed to increase objectivity in observing and interpreting children's behavior, to observe developmental characteristics and to increase awareness of typical

and atypical patterns of behavior for all children including those with disabilities, developmental delays, language, and/or cultural differences. Observation and participation placements are provided for the study of young children at the College's Laboratory School or at an area NAEYC accredited center with the approval of the professor. The students will observe and participate in a center to gain experience and competency in working with young children including those with disabilities, developmental delays, language, and/or cultural differences. Weekly seminars devoted to issues in observing and understanding all children's development will extend the individual's observing and participating experiences. A minimum of 45 hours of fieldwork is required for this course.

ECED 2515 - Exceptional Learners
Credits: 3
Prerequisite: ECED 1001 and (PSY 2004 or ECED 1002) or permission of program coordinator, or bachelor's degree in education or related discipline
The course provides an overview of the study of the exceptional child with emphasis on the history, laws, concepts, practices, and terminology used by professionals in the field within inclusive settings. Accommodations and teaching techniques effective for children with disabilities and developmental delays will be explored. A minimum of 5 hours of fieldwork is required for this course.

ECED 2825 - Anti-Bias, Equity, and Diversity in Education
Credits: 3
Prerequisite: ENG 1010 or with permission of program coordinator.
This course introduces anti-bias and multicultural education, equity, implicit bias, and microaggression awareness as it applies to working with children and families. It examines and challenges prevailing misconceptions, stereotypes, and "isms." This course offers practical guidance for creating a culturally relevant and anti-bias/multicultural curriculum for children and families. Students practice self-reflection and critical analysis of the four goals of anti-bias education.

ECED 2875 - Children, Families, and Communities
Credits: 3
Prerequisite: Eligibility for ENG 1010 or with permission of program coordinator.
This course is an in-depth look at the child, family, school and community and the relationship between and among them. It will review the socialization process and the development of the child as a social being. The course will examine how family systems, community settings and school environments impact young children including those with disabilities, developmental delays, language, and/or cultural differences. Students will explore creating effective working relationships with families through communication considering the role of culture, diversity, and theory.

EDUC 2010-Foundations of US Education
Credits: 3
Prerequisite: Eligible for ENG 1010
Foundations of U.S. Education is an introductory course in U.S. education through a study and analysis of the historical, sociological, philosophical, ethical, legal, and financial factors basic to the governance and practice of American education. Observations are required. It is designed to provide students who want to pursue careers in elementary or secondary education with knowledge of the philosophical theories, historical circumstances, political influences, ethical consideration, and societal elements which have uniquely shaped the educational system and the governance and operation of schools in America.

EGR 1120 - Engineering Drawing Specs
Credits: 3
Prerequisite: None
This is an introductory course in the interpretation of engineering drawings beginning with the basics of orthographic projections. Topics include Geometric Constructions, Orthographic Drawings, Auxiliary Views, Sections, Dimensioning, Tolerances, Working Drawings, Descriptive Geometry, and an introduction to Geometric Dimensioning and Tolerancing (GD&T).

EGR 2098 - Engineering Internship
Credits: 3-4
Prerequisite: Instructor Permission
This course provides an opportunity for students to gain practical experience in an industrial setting under the supervision of a faculty advisor and an industrial supervisor.

ENG 0910 - Composition Workshop
Credits: 3
This is a linked section for students enrolled in ENG 1010 Composition. Students will receive additional instruction in support of English 1010 outcomes, specifically critical reading, thinking, and writing; crafting logical arguments; using language effectively; and engaging credible, college-level sources.

ENG 0960 - Introduction to College English- (not required for CDA)
Credits: Zero
This course prepares students for the reading and writing demands in Composition and other college-level courses by integrating reading, writing, and critical thinking. Student writing will focus on understanding, reporting on, reacting to, and analyzing the ideas of others. Texts will serve as models and sources for students to refine their skills in exposition, interpretation, and argumentation.

Additional Info: This course does not satisfy an English requirement or an elective in any degree program, nor do its credits count toward graduation.

ENG 1010 - Composition I
Credits: 3
Prerequisite: Successful completion of ENG 0960 with a C or higher, or as determined by the placement process.
Composition focuses on the study and practice of effective written communication across a variety of rhetorical situations. The course develops skills in applying language conventions, engaging with, and using authoritative sources, and crafting logical arguments.

ENG 1020 -Composition II and Literature
Credits: 3
Prerequisite: ENG 1010 with a C or higher
This course continues the reading, writing, and critical thinking skills developed in ENG 1010 through an introductory study of literature including fiction, poetry, and drama that reflect multiple and diverse perspectives. Students will receive further instruction in writing text-based, analytical essays that incorporate research.

ENG 1080 - Composition II: Technical Writing and Presentations
Credits: 3
Prerequisite: ENG 1010 with a C or higher, or permission of instructor
A course in developing the skills needed for technical communication in its various forms. Students will study how audience, purpose, and context shape the process and production of texts in the fields of business, science, technology, and industry.

ENV SCI 1010-Introduction to Environmental Science
Credits: 3
Prerequisite: Eligibility for ENG 1010 with workshop
This 3-credit, non-lab introductory environmental science course is suitable for science and non-science majors. Students will survey natural systems, humans' impacts on natural systems, and potential solutions to current and future environmental issues on global, regional, and local scales. Embedded in the course are explorations of interdisciplinary topics including, but not limited to, process of science; environmental ethics, attitudes, and laws; resource consumption; climate change; biodiversity loss; forests and soils; food systems, agriculture, and fisheries; land use planning; pollution and toxicology; mining and energy; water and waste management; sustainable
development; ecological economics; and environmental justice. Active learning is an essential component of this course.

Additional Info: ENV 1010 alone fulfills the General Education requirement Scientific Knowledge and Understanding. Taken with the lab (1010L), it fulfills the Scientific Reasoning requirement. Required for Environmental Biology, Environmental Engineering Technology, Environmental Science: Sustainability, Environmental Science and Toxicology, Natural Resources and Technology Studies: Environmental Science majors.

HIST 1015-US History to 1877
Credits: 3
This course is an examination of major themes in the development of North America from pre-European settlements to the end of the American Civil War and Reconstruction. Topics include Native American societies, European colonization, slavery, the formation of the United States, the Antebellum, and the Civil War/Reconstruction.

MFG 1004 - Manufacturing Processes
Credits: 4
Prerequisite: none
Based on the lectures, students study the theoretical concepts involved in the process of designing and manufacturing parts, as well as develop the understanding, knowledge, and skills required & nbsp in engineering design and manufacturing processes, including Measurements, Math, and Blueprints. Lab (Shop) studies emphasize Measuring, Variations and Tolerances, Benchwork and Layout, Workholding, Drilling, Milling, Turning, Grinding & other manufacturing operations as time allows. Exercises in the Lab (Shop) will involve set-up, procedures, and execution for various manufacturing processes, using a variety of tools, machines, and materials.

MFG 1330 - Mathematics for Electricity and Electronics
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
Mathematics for Electricity and Electronics is intended for the student who needs in-depth knowledge of the mathematics of electronics and electricity. It will review several areas that the student may be familiar with and move into advanced areas that are necessary for the understanding of electronics functions and analysis of complex circuits, including: the basic laws of arithmetic, the powers of numbers, scientific notation, literal equations, trigonometry of the right triangle, basic geometric concepts of angles, fractional exponents, and frequency distribution.

MFG 1337 - Circuit Theory
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
The circuit is a fundamental building block for all electrical and electronic devices that make our life comfortable and efficient. There are several principles that determine the

flow of electricity that any student of electricity or electronics must learn to understand the nature and abilities of electrical and electronic equipment. Circuit Theory I is an introduction to direct current (DC) circuits. Circuit Theory I will introduce the student to electrical/electronic components; the nature of electricity (voltage, current and resistance); Ohm's Law of measurement; the concept of energy and power; types of circuits (series, parallel, and series-parallel); Thevenin's and Norton's Theorems of circuits simplification, and magnesium and electromagnetism.

MFG 1338 - Digital Fundamentals
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
Digital circuitry is the foundation of computers and automated control equipment in our industries. Digital circuitry is the basis for many of our appliances, alarm systems and heating systems. Our newer automobiles utilize digital circuits and devices to make them safer and more energy efficient. Consequently, a basic understanding of the elemental nature, design, theory, and operation of digital circuits is necessary for any electronics student. This course provides the foundation necessary for the understanding of digital logic. The student is introduced to the concepts of digital vs. analog waveforms, digital and other numbering systems, digital codes, and Boolean algebra. The student is then introduced to the various logic gates that are incorporated into all logic systems from that of a computer to a microprocessor in a household appliance. This course explores the combination circuits, data control devices, sequential logic (flip-flop and counters) circuits and shift registers, communications protocols, and finishes with an interface with the world of analog.

MFG 1340 - Robotics
Credits: 3
Prerequisite: MFG 1338, MFG 1343, MFG 1346
Robotics provides the student with a brief history of the application of robotics to the manufacturing process to date and a vision of future applications of robotics. Robotics provides an overview of the robotic hardware, software, and programming necessary to specific applications. Robotics reviews the following: electromechanical systems, fluid power systems, sensing systems, end-of-arm tooling, programmable logic controllers (PLC's), digital electronics, programming, and industrial applications.

MFG 1342 - Electronic Circuits & Devices
Credits: 3
Prerequisite: Placement into MATH 0988 or permission by instructor
Electronic circuits and devices are commonplace in the industrial manufacturing process; consequently, a complete understanding of control circuits and devices is necessary for anyone who intends to have a career in manufacturing control, maintenance, or

engineering. Electronic Circuits & Devices provides an introduction to electronic materials, components, circuits, devices, and their applications. The course will provide an overview of semiconductors, diodes, transistors (bi-polar, field-effect and unijunction), applications of silicon-controlled rectifiers (SCR's) and triodes for alternating current (TRIAC's) to circuits, and application of components to rectifiers, amplifiers, and relays.

MFG 1343 - Industrial Motor Controls
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
Prerequisite/Corequisite: None
In the global economy of today, it is imperative that the manufacturing of each product is as cost-efficient as is physically possible. This efficiency is brought about through the application of the latest technology to the manufacturing process. The process of motor control is integral to the flow of the product from raw material to finished product. Industrial Motor Control will familiarize the student with the following: principles of solid-state control devices and their components (such as semiconductors, p-n junction, Zenor diodes, and transistors); alternating current (AC) and direct current (DC) motor controls; motor drives; control circuits; motor starters and pilot devices.

MFG 1344 - Hydraulics and Pneumatics
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
This course is an introduction to the fundamentals of hydraulics and pneumatics, which involves both theoretical and practical study, including problem solving. Topics will include valves, pumps, circuits, system troubleshooting, and controllers for major processing equipment.

MFG 1345 - Electronic Variable Speed Drive
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
The flow of product in the manufacturing process can be as simple as an on/off motor control switch or as complex as a variable speed drive that incorporates a feedback system. Most large and small companies utilize the more technologically advanced systems; hence they incorporate one or more variable-speed drive(s) in their production process. Electronic Variable-Speed Drive Systems will introduce the student to alternating current (AC) and direct current (DC) drive fundamentals, switching amplifier field current controllers, silicon- controlled rectifier (SCR) armature voltage controllers, brushless DC motor controllers, chopper circuits, voltage inverters, and flux vector drives.

MFG 1346 - Programmable Logic Controllers
Credits: 3

Prerequisite: Placement into MATH 0988 or instructor permission
The incorporation of the Programmable Logic Controller (PLC) is one of the fastest growing sectors in the field of electronics as the PLC replaces electromechanical control systems, such as electromagnetic relays and programmable logic devices (PLD's). Programmable Logic Controllers provides the student with an overview of the PLC, its hardware, numbering systems and codes, logic fundamentals, programming timers and counters, program control and data manipulation instructions, math instructions, sequencer and shift register instructions, and PLC installation, editing and troubleshooting.

MFG 1359 - Industrial Maintenance
Credits: 3
Prerequisite: Placement into MATH 0988 or instructor permission
The industrial maintenance course is designed to give the student an overview of the mechanical nature of industry. Even though electronic devices have made great inroads in industry, the mechanical nature of production remains nearly unchanged over the years. The expression "wheels of industry" remains as true today as it did yesterday. This course will provide the skills necessary to install and to maintain the mechanical parts and machines that provide the ability of manufacturers to produce our manufactured products e.g., automobiles, appliances, etc. The course covers the following areas: safety, tools, fasteners, industrial print reading, belts and sheaves, chains and sprockets, gears and gearboxes, bearings, shafts, lubrication, seals and packings, pumps and compressors, fluid power, piping systems, and preventive maintenance.

MFG 1411 - Manufacturing Materials & Processes I
Credits: 3
Prerequisite: MATH 1010
An introduction to the basic principles on which manufacturing processes are based, and to the basic materials produced by or used in these processes. Topics include nature of materials and specifically metals; the basic processes in manufacturing metals and some non-metals; testing of engineering materials; ferrous and non-ferrous metals and alloys; fundamentals of metal casting, molding, and heat-treating processes; metal cutting, forming, welding, joining, and abrasive processes; metal machining processes; quality control measurement and inspection. Some topics include problem solving and algebra-based calculations.

MFG 1415 - Safety in the Workplace
Credits: 1
Prerequisite: None
This course provides an introduction to the safety and health issues encountered in a manufacturing environment. This course introduces students to the concepts of personal

and work environment safety requirements of manufacturers as well as the governmental oversight agencies such as OSHA.

MFG 1477 - Machine Technology Fundamentals
Credits: 4
Prerequisite: Placement into MATH 0988
This course is a combination of classroom theory and hands on lab experiences. This course is an 8-hour lab class each week to machine various projects. This course introduces a student to the fundamentals of metal machining technology machines. The student will learn how to operate lathes, mills, grinders and sawing machines. Students perform basic lathe operations including turning, facing, knurling, drilling, reaming and tapping. The student also performs basic milling operations such as indicating a vise, tramming a head, use an edge finder, square a block, drill tap and ream holes on location. Speeds and feeds and basic machining principles are covered. The student also learns how to operate a surface grinder using all safety guidelines, mount and dress a wheel and grind surfaces flat and parallel. The student also learns to operate a bench grinder.

MFG 1478 - CNC Fundamentals
Prerequisite: Placement into MATH 0988 or instructor permission
Credits: 3
This course is a combination of classroom theory and hands on lab experiences. This course is split into 3-hour classroom and 3-hour lab each week to machine various projects. This course introduces a student to the fundamentals of Computer Numerical Controlled machines. The student will learn conversational programming to operate lathes and milling machines. This is the first step to understand the Cartesian Coordinate System and basic steps and processes to machine parts to blueprint specifications. The students will also learn to operate CNC machines to understand and set tool offsets as well as loading programs. This also includes proper tool and cutter mounting for best performance. Cutter compensation is covered in both conversational and G-code language. This includes the set-up of vises and other work holding devices or fixtures. Indicating surfaces and datum identification is an important part of this class. Geometric Dimensions and Tolerances are explained to meet business and industry standards. Included is maintenance and machine care.

MFG 1479 - Career Awareness for Manufacturing
Credits: 1
Prerequisite: None
This course will prepare students for the opportunities available in different manufacturing career pathways. Students will strengthen their skills in researching potential employers and in personal marketing, including building resumes and sharpening their interview skills.

MFG 2405 - Principles of CNC with Mastercam
Credits: 3
Prerequisite: None
An introduction to computer numerical control (CNC) programming of 3-axis machine tools by generating 2D and 3D geometries using Mastercam® software. Topics include an introduction to CNC programming, coding, virtual set-up, virtual tooling, virtual operation, post-processing, and troubleshooting based on CNC practices. Students learn the basic principles and applications of numerically controlled software and hardware and get exposed to the programming of CNC milling machines and machining centers.

MFG 2439 - Geometric Dimension & Tolerancing (GD&T)
Credits: 3
Prerequisite: EGR 1120
An intermediate course in the interpretation of engineering drawings, beginning with the basics of dimensional tolerances and tolerance systems. Topics include: the mathematics of interpreting and specifying tolerances on dimensions, the system, and rules of geometric tolerancing, and the basic nomenclature and standard symbols conforming to the latest ANSI/ASME Y14.5M-2018 standards as they pertain to manufacturing and engineering drawings.

MFG 2444 - CNC I
Credits: 3
Prerequisite: MFG 1477
This course introduces students to Computer Numerical Control programming for CNC Mills and CNC Lathe. Students will receive instruction on CNC control commands (G & M code) through the use of Simulator MCUs (Machine Control Units) as well as online resources.

MFG 2445 - CNC II
Credits: 4
Prerequisite: MFG 2444
This course introduces students to Computer Numerical Control (CNC) machining with topics including setup and tooling, programming NIMS Certification parts, and modification of programs to compensate for process variation, utilization of canned drilling cycles, circular interpolation, special milling cycles, looping and special features. Upon completion students will be able to set up CNC 3-axis mills; locate, load and proof the CNC program; execute the program; inspect parts; and modify program instructions via G&M code.

MATH 0988 - Elementary Algebra Intensive

Credits: 6
This course embeds additional support into the MATH 0989 - Elementary Algebra Foundations course, including a concentrated arithmetic review. This course includes a study of the basic properties and theorems of rational numbers, expressions and equations with polynomials, rational and radical expressions, linear equations, and inequalities in one variable, graphing linear equations in two variables, formulating equations of lines in two variables, an introduction to functions, rules of integral exponents, operations on polynomials, and applications in geometry and algebra. *Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.*

MATH 0989 - Elementary Algebra Foundations
Credits: 3
Prerequisite: None
This course includes a study of the basic properties and theorems of rational numbers, expressions and equations with polynomials, rational and radical expressions, linear equations, and inequalities in one variable, graphing linear equations in two variables, formulating equations of lines in two variables, an introduction to functions, rules of integral exponents, operations on polynomials, and applications in geometry and algebra. Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.

MATH 1004 - Math for Elementary Education: Algebra/Number Systems
Credits: 3
Prerequisite: Placement using multiple measures or MATH 0988 or MATH 0989 with a grade of C or higher, and eligible for ENG 1010
This is a mathematics course that prepares students to teach mathematical reasoning skills starting with the natural numbers and extending to the integers, rational numbers, and real numbers. Students will learn best practices in math education through the use of manipulatives, appropriate technologies, and analysis of other numeration systems. This course is intended for students in Early Childhood, Elementary, and Middle School Education Programs.

MATH 1010 - Intermediate Algebra
Credits: 3
Prerequisite: Grade of C or a higher MATH 0988 or MATH 0989 or placement using multiple measures.
This course is a further study of algebra and mathematical modeling of functions and relations represented by tables, graphs, words, and symbols. Polynomial functions and expressions with special attention to linear, quadratic, exponential, rational, and radical functions are studied. There is an emphasis on modeling and applications for all topics. The

use of mathematics specific technology to support understanding of the concepts is required.

MATH 1100 - Quantitative Reasoning
Credits: 3
Prerequisite: MATH 0988 /MATH 0989 (C- or higher) OR placement using multiple measures
This course provides a comprehensive overview of the quantitative skills needed to be an engaged citizen. Critical thinking and problem solving are emphasized along with the application of mathematics to real-world scenarios requiring reasoning from evidence. Students will learn to communicate effectively with numbers and use appropriate technology to enhance their quantitative reasoning ability.

MATH 1200 - Statistics I
Credits: 3
Prerequisite: MATH 0988 /MATH 0989 (C- or higher) OR placement using multiple measures
This course covers fundamental concepts in descriptive and inferential statistics, probability, and probability distributions. Descriptive statistics topics include: the concept of population versus sample, frequency distributions, measures of central tendency, measures of variation, measures of position, and correlation and linear regression. Inferential statistics topics include confidence intervals and hypothesis testing. This course requires the use of computer-based statistical software. Students may not earn credit for both this course and MATH 1201 Statistics I with Computer Applications.

MATH 1410 - Math for Elementary Education: Geometry/Data
Credits: 3
Prerequisite: C or higher in MATH 1004
Presents geometry, measurement, rational numbers, irrational numbers, ratio and proportions, problem-solving, mathematical reasoning and connections, probability, and statistics. The use of mathematics specific technology to support understanding of the concepts is required.

MATH 1600 - Pathway to Calculus: College Algebra
Credits: 3
Prerequisite: C or higher in MATH 1010
This course offers the development of numerical, algebraic, and graphical problem-solving techniques to be used in calculus. Techniques are developed to solve equations involving polynomial, radical and rational functions. Polynomial, inverse, rational, exponential, and logarithmic functions are studied, and their applications are explored both algebraically and graphically. Whenever possible, learning of mathematical concepts is embedded in

contextualized situations relevant to STEM majors. The use of mathematics specific technology to support understanding of the College Algebra course is required. This course is designed for STEM majors and fulfills the prerequisite requirement for MATH 1610 Precalculus.

MATH 1610 - Precalculus
Credits: 4
Prerequisite: C or higher in MATH 1600
This is an intensive preparatory course for the Calculus course sequence. Topics include a study of functions and their graphs; polynomial functions and their zeros including complex solutions. This also covers rational, trigonometric, exponential, and logarithmic functions and equations. The use of mathematics specific technology to support understanding of the Precalculus course is required.

MATH 2600 - Calculus I
Credits: 4
Prerequisite: C or higher in MATH 1610
A first course in calculus with a focus on differential calculus. Topics include the study of limits, continuity, rates of change, the definition of the derivative, the Mean Value Theorem, and the Fundamental Theorem of Calculus, and techniques of differentiation of linear, polynomial, exponential, logarithmic, rational, and trigonometric functions. The course will include applications of the derivative to solve real-life problems. Characteristics of functions such as intervals of increase or decrease, concavity, extrema, and end behavior will be studied to describe, reason, interpret, and analyze relationships. The course concludes with an introduction of antiderivatives and integration techniques. The use of mathematics specific technology to support understanding of Calculus I is required.

MDAS 1025 - Medical Terminology for Clinical and Administrative Professions
Credits: 3
Prerequisite: Eligible for ENG 1010
Course Description: This course introduces the language of healthcare. It will cover spelling, pronunciation and definitions of medical terms. Anatomy, physiology, major diseases, signs, symptoms, diagnoses, procedures, medications, treatments, and medical abbreviations will be introduced. The basic structure of medical terms including prefixes, suffixes, and word roots will be presented. Body systems are used as the organizational framework to present terminology.

MDAS 1011 - Administrative Medical Assisting
Credits: 3
Prerequisite: Eligibility for ENG 1010

Course Description: This course covers the theory, practice and techniques of medical office management and an overview of the profession of medical assisting and its role in providing quality health care. Healthcare administrative functions, including safety in the office environment, verbal and written communication techniques, telehealth, electronic medical records (EMR), medical records management, patient reception, scheduling, professionalism and legal and ethical issues will be emphasized. Emphasis is on daily office procedures, financial management, and computer literacy needed for the healthcare industry today.

MDAS 1012 - Medical Insurance Billing
Credits: 3
Prerequisite: Eligibility for ENG 1010
Course Description: This course presents an overview of healthcare insurance and is designed to introduce the student to the history and development of payment systems, medical insurance, claims processing and billing issues in healthcare. Insurance terminology, healthcare reform, healthcare access, ethical, legal and compliance issues, regulatory requirements, the Health Insurance Portability and Accountability Act (HIPAA), and the eligibility and reimbursement benefit structure of a variety of insurance plans including Medicare, Medicaid, Managed Care, TRICARE, Commercial plans and Workers' Compensation will be covered. Course material and discussions will focus on the different types of insurance, federal and state regulations, referrals and prior authorizations. Manual and electronic recordkeeping, coding and billing and Current Procedural Terminology (CPT), Healthcare Common Procedural Coding System (HCPCS), and International Classification of Diseases (ICD)coding systems, will be compared using healthcare claims processing, medical office accounting practices and billing software.

MDAS 1033 - Clinical Medical Assisting
Credits: 4
Prerequisite: Eligibility for ENG 1010
Course Description: This course covers the theory and practice of clinical skills used by the medical assistant in an outpatient environment. The course presents practices commonly performed in assisting with clinical procedures, developing communication skills between healthcare professionals and patients, and providing patient education. The course focuses on documentation, interview techniques, adult and pediatric physical exams, vital signs and measurements, and medical asepsis.

MDAS 2016 - Electronic Medical Records
Credits: 3
Prerequisite: Eligible for ENG 1010
Course Description: This course is designed to introduce the student to the basics of electronic medical records (EMR) software, focusing on the day-to-day operations. This

course provides the student with the opportunity to put skills learned in previous coursework into practice., Students learn how to navigate Computer Physician/Provider Order Entry systems (CPOE), understand Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH),and how to avoid errors with Electronic Health Records (EHR) best practices by inputting data and running reports, in a simulated medical setting. Students learn about EHR management practices and system interoperability. Telehealth, ePrescribing, and Scribing will be explored along with the impact of EMR on various areas of the healthcare system.

MDAS 2042 - Clinical Procedures and Practices
Credits: 4
Prerequisite/Corequisite: MDAS 1025 and MDAS 1033, both with 'C' or higher
Course Description: This course provides an introduction to clinical laboratory procedures, sterile technique and laboratory equipment. Basic diagnostic ambulatory tests for patient evaluation and treatment are studied, along with emergency care, nutrition, surgical techniques, wound care and specialty exams.

MDAS 2042 - Clinical Laboratory Procedures
Credits: 4
Prerequisite: MDAS 1033 or MDAS 1025, both with 'C' or higher
Course Description: Students will perform venous and capillary blood collection methods. Students will obtain the necessary skills to perform various diagnostic tests performed in ambulatory facilities including microbiology, immunology, hematology, chemistry and pulmonary function tests, routine urinalysis, and electrocardiograms. Students are required to purchase scrubs or a lab coat, to be worn in class.

MDAS 2050 - Principles of Pharmacology
Credits: 3
Prerequisite: Eligible for ENG 1010 and MATH 1002
Course Description: This course is an examination of the more commonly prescribed medications as they relate to specific body systems. Topics include practices, procedures and laws governing the use, dispensing, and storage of pharmaceuticals. Terminology relating to drugs and the administration of drugs is emphasized. Medications will be correlated to pathology, common diseases, and treatments as related to body systems.

MDAS 2095 - Medical Assisting Practicum/Externship
Credits: 4
Prerequisite: MDAS 2050 courses, all with a 'C' or higher, and permission of Program Coordinator

Course Description: Preparation and work experience in an outpatient medical setting under the supervision of the facility staff and College instructor. completeapproximately10 hours of seminarian preparation for a minimum of 160 hours experience at an approved site. Practicum/externship experience of at least 160 contact hours enables students to apply the cognitive (knowledge) base and the psychomotor and affective objectives (competencies) they have learned, develop clinical proficiency, and assume responsibility for unpaid performance of clinical and administrative procedures in an ambulatory health care setting. Students will prepare and are encouraged to apply for a certifying exam. Students must have current cardiopulmonary resuscitation (CPR)and first aid certification during the entire practicum/externship experience.

PHYS 1201 - General Physics I
Credits: 4
Prerequisite: MATH 1610 with a grade of C or higher
An algebra-based introduction to classical mechanics and heat. Topics include vectors, kinematics, Newton's laws, momentum, energy, rotational motion, fluids, heat, and thermodynamics.

PHYS 1202 - General Physics II
Credits: 4
Prerequisite: PHYS 1201 with a grade of C or higher
An algebra-based introduction to electricity, magnetism, and light. Topics include electrostatics, direct current circuits, magnetism, electromagnetic induction, electromagnetic waves, and properties of light.

PSY 1011-General Psychology
Credits: 3
Prerequisite: Eligibility for ENG 1010
This course will explore and review the field of psychology. Topics will include history of psychology, research methods, the biological basis of mind and behavior, motivation and emotion, learning, memory, health and stress, and life span development. The course is appropriate for those who are considering a career in psychology or have an interest in developing a better understanding of the basis of human behavior.

PSY 2004 - Child and Adolescent Development
Credits: 3
Prerequisite: PSY 1011 with a grade of C- or higher
This course will study human development from conception through adolescence. It will focus on the theories of physical, cognitive, social, and emotional growth along with research methodologies in child development. Hereditary and environmental influences are explored.

SOC 1001 – Principles of Sociology
Credits: 3
Prerequisite: Eligibility for ENG 1010
HYPERLINK "https://cca.edadvance.org/coursedescriptions"This class provides a general introduction to the science of sociology, including the “sociological imagination,” theory and methods. Students are taught what is unique about the way in which sociologists view and analyze human behavior. The role of the social structure and how it affects our lives will be emphasized. There will also be an emphasis on how sociologists develop and test their hypotheses, as well as on various aspects of social life such as culture, groups and institutions, deviance and social control, inequality, ethnicity, and family.

Career-Connected Learning

A critical pillar of the CCA is our Career-Connected Learning (CCL) program. The CCA CCL program is a structured educational strategy that integrates academic learning with practical workplace experiences. Students are provided with opportunities to apply classroom knowledge in real-world work environments, gaining valuable skills and insights that enhance their understanding of the subject matter and prepare them for future careers. Career-Connected Learning can take various forms, including internships, pre-apprenticeships, experiential learning, and job shadowing, among others. The CCL experiences are designed to prepare students for their future careers by enhancing their understanding of industry practices, developing their professional skills, and exploring potential career pathways. The CCA CCL activities and experiences are currently scheduled to occur every Friday or every other Friday, depending on the district's schedule and capacity. EdAdvance will provide transportation for students between the high school and all off-site CCL programming.

The purposes of the CCA CCL program are to:

- build student awareness of potential careers
- facilitate student exploration of career opportunities
- begin student preparation for careers

Glossary of Work Based Learning Terms

Career Pathways: A series of connected education and training programs, credentials, and support services that enable individuals to secure employment within specific industries or occupational sectors. These pathways are designed to help individuals develop the skills and knowledge needed to succeed in their chosen career field through a structured progression from entry-level to more advanced roles. Career pathways typically integrate academic learning with hands-on training, work-based experiences, and opportunities for industry-recognized certifications or credentials.

Experiential Learning: The process of learning through hands-on experiences, activities, and reflection. It involves actively engaging with real-world situations, tasks, or projects to gain practical knowledge, skills, and understanding. This approach emphasizes learning by doing, allowing students to apply classroom learning to practical environments, make connections between concepts and real-world applications, and develop critical thinking, problem-solving, and decision-making skills.

Industry Partnerships: Collaborative relationship between businesses, organizations, or industries and educational institutions. These partnerships promote mutual benefits such as workforce development, innovation, research collaboration, and community engagement and share the goal of addressing common challenge(s), support economic growth, and enhance educational and career opportunities for students entering the workforce.

Internship: Short-term work opportunity that allows students to gain practical experience and apply their academic knowledge in a real-world setting. Internships are designed to provide valuable hands-on learning, networking opportunities, and insights into a particular industry or field of work.

Job Shadowing: A student observes a professional on the job to gain insight into the daily responsibilities, tasks, and skills required for a particular job or career field. It provides an opportunity for students to explore different careers and industries by observing professionals in their work environment.

Pre-Apprenticeship: A program is designed to prepare students for entry into a formal registered apprenticeship program. It typically includes a mix of classroom instruction and hands-on training, providing participants with foundational knowledge and skills relevant to a specific trade or industry. Pre-apprenticeships often focus on areas such as technical skills, workplace safety, communication, and professional conduct, aiming to equip individuals with the readiness and qualifications needed to succeed in an apprenticeship.

Professional Skills: Non-technical skills, including communication, teamwork, problem-solving, leadership, and time management, essential for success in the workplace. These skills are essential for success in various careers and professions.

Career-Connected Learning (CCL): A continuum of structured career-related activities and experiences that integrate classroom instruction with practical work experiences in a professional setting. These real-world experiences range in intensity, structure, and scope and introduce students to a specific industry or field.

Career-Connected Learning progresses through three distinct. It starts with **Learning About Work** or Career Awareness, which introduces a student to the diverse array of careers within the CCA pathways. The second stage, **Learning**

Through Work or Career Exploration, focuses on narrowing down a student's career interest or passion, delving deeper into a specific career pathway. The third stage, **Learning Through Work** or Career Training, offers a student tangible experiences such as short-term internships and youth apprentices when the student is ready to commit to a more profound experience within a work environment.

Career-Connected Learning Progression

Learning About Work Students are introduced to the variety of available careers • Career Days/ Fairs • Industry Speakers/ Panels • Work Site Tours	->	**Learning Through Work** Direct interaction with professionals • Job Shadowing • Micro-Internships • Challenges/ Competitions	->	**Learning at Work** Activities at work site • Pre-Apprenticeship • Clinical Experiences • Student Teaching • Internships • Employer- • Employee Mentorship

The College and Career Accelerator CCL program positions students to become career-informed and career-ready.

Connecticut Jobs Outlook

Manufacturing Engineering Pathway

Connecticut's manufacturing sector presents a wealth of employment opportunities, underscored by current statistics and future projections. With over 4,000 manufacturing companies operating in the state, the demand for skilled workers is evident. In fact, a significant 86% of these companies report challenges in finding and retaining qualified employees. This demand is reflected in the more than 6,500 open manufacturing positions, a number expected to rise with over 65,000 additional job openings anticipated by 2034. These figures highlight the robust employment landscape within Connecticut's manufacturing industry, making it an attractive and promising sector for those seeking stable and rewarding careers. Finally, and most compelling: In April 2024, the Office of Manufacturing announced, "Make It Here 2030," which is a comprehensive plan for

Connecticut. The goal of this plan is to achieve full employment in the manufacturing sector by the year 2030.

Quick Facts	
65,000	**Number of anticipated openings by 2034**
9,000	**Number of open jobs**
4548	**Number of manufacturing companies**
86%	**Number of all manufacturing companies report it is difficult to find and/or retain workers**

*According to recent data

Education Pathway

In Connecticut, the job outlook for educators, including teachers from preschool to grade 12 and paraprofessionals, reflects a significant immediate and long-term demand. The state faces a notable shortage with 5,624 anticipated educator vacancies within the next several years, and there are 1,300 current teaching vacancies. Similarly, there are 1,300 open positions for paraprofessionals. Additionally, there are approximately 40,000 unfilled childcare slots due to insufficient staffing, highlighting the critical need for qualified educators across all levels of education, including preschool centers.

Quick Facts	
5,624	**Number of anticipated educator vacancies within the next several years**
1,300	**Number of educator vacancies**
1,300	**Approximate number of paraprofessional vacancies**
40,000	**Number of unfilled childcare slots due to insufficient staffing**

*According to recent data

Potential Future Tiers

Manufacturing/Engineering

Tier 2: Mechanical Computer Aided Design Certification

Program Description: The Mechanical Computer-Aided Design (CAD) certificate program provides students with career-based training in mechanical design using computer-aided drafting/design technology. To provide the necessary technical base, the program also includes engineering drawing, and geometric dimensioning and tolerancing skills. Basic training in computer technology is included to prepare students for the two-dimensional, three-dimensional, and solid-modeling computer-aided design technology in the program. CAD technology in the core of the certificate program is comprised of 2D AutoCAD®, Solidworks® parametric solid modeling and rendering technology, as well as an option of Mastercam® CNC software, and NX parametric solid modeling. All manufacturing and engineering design in today's high-technology business and industry use computer-based manufacturing and computer-aided design technologies that integrate the design, engineering and manufacturing processes of complex products, parts, and assemblies, into a single, technically coherent process.

**Notes: a. CADU is the first year of the 2-year Mechanical CAD sequence. b. Students enrolled in either AS Engineering Program can additionally complete the Mechanical CAD Certificate by adding CAD 2210 to their Spring 12th grade schedule.*

Learning Outcomes:

- Interpret complex engineering drawings.
- Exhibit competency in turning the engineering concept drawings into CAD models.
- Exhibit competency in two-dimensional, three-dimensional, and solid-modeling skills as applied to complex computer-aided design technology.
- Demonstrate an understanding of the role and function of parametric CAD modeling in the simplification of the design process.

Tier Two Model Course Progression – Two Year Program				
Term	Course 1	Course 2	HS Credits	CT State Credits
Year 1	Two Year Program			

Semester 1	EGR 1120	CAD 1330	1	6
Semester 2	CAD 2200		.5	3
Year 2				
Summer	MFG 2439		.5	3
Semester 1	CAD 2300		1	6
Semester 2	MFG 2405		.5	3
Total Cumulative Credits			3.5	21

Tier 3: Mechatronics Automation Technician Certificate

Program Description: The Mechatronics Automation Technician certificate provides students with the opportunity to train in a hands-on manufacturing lab environment. Throughout their training, students will develop an advanced level of skillsets in electrical, electronic, and mechanical principles applied to the design and operation of modern, high-speed manufacturing and assemble equipment. Completing this certificate will provide the student requisite skills necessary to troubleshoot any electronic or mechanical problems associated with in the manufacturing environment, health industry, distribution systems, machining industry, wholesale, retail, warehouse, and engineering. These skills will lead directly into a career in the field of automation, CNC/Machine maintenance & repair, and/or robotics in manufacturing companies throughout the state and nation. This program was developed in response to Connecticut manufacturers' needs for a highly skilled workforce to match the needs of the regional industry sector partnerships around the state of Connecticut that graduates of the program are placed with. The student who completes the Mechatronics Automation Technician certificate program has a choice to pursue employment and/or to matriculate in an associate degree program. Many students work in the field while coming through this program through an apprenticeship program or full-time employment. This allows students to apply what they have learned directly to the needs of their employer.

Learning Outcomes:

- Apply knowledge of theory and principles related to mechanics, electronics, computer science, and process control.
- Apply critical thinking and problem-solving skills to troubleshoot electromechanical, hydraulic, and pneumatic automation systems.
- Apply logical reasoning and mathematics to analysis of automation systems and their components.

- Communicate technical information clearly.
- Apply soft skills effectively to help gain employment and be successful in the workplace.
- Understand and follow basic shop safety guidelines and protocol.

This certificate provides training in Mechatronics. Mechatronics is a multidisciplinary field that includes a combination of mechanical systems, robotics, electronics, telecommunications, digital processing, and digital controls. Using both instructional techniques and hands-on practice with state-of-the-art equipment, the student will receive a comprehensive and expansive education in an ever-growing career field. The successful graduate may apply their knowledge and skills in various fields such as engineering, design, manufacturing, machining, troubleshooting and automated equipment repair. The student who completes the Robotics and Mechatronics Technician certificate program has a choice to pursue employment or to matriculate in an associate degree program.

Tier Three Model Course Progression – Three Year Program				
Term	Course 1	Course 2	HS Credits	CT State Credits
Year 1	Two Year Program + additional summer			
Semester 1	*MFG 1337		.5	3
Semester 2	MFG 1338 / MFG 1479		.5	4
Year 2				
Summer	MFG 1343	MFG 1342	1	6
Semester 1	MFG 1346 / MFG 1415		.5	4
Semester 2	MFG 1340		.5	3
Year 3**				
Summer A**	MFG 1345	MFG 1344	1	6
Summer B**	MFG 1359		.5	3

Total Cumulative Credits	4.5	29

*Elementary Algebra Math prerequisite required for program entrance. Can be met through instructor permission, completion of MAT 1330, or a successful Accuplacer score.
**Summer A and Summer B indicate the sequence of summer course offerings. Summer A courses need to be completed before Summer B courses can begin.

Education

Tier 1 ECE: Early Childhood Certificate

Program Description

The certificate is designed to develop skills and knowledge necessary and desirable to work with young children. The credits earned in this tier are transferable to the Associate of Science degree in Early Childhood Education or Pathway to Teacher Certification programs. Students who complete this 24-credit certificate can provide the basic aspects of professional childcare and inclusion education such as lesson planning, instruction, guiding student behavior, supporting families, and caring for and monitoring the safety for all young learners including those with special needs.

Learning Outcomes

- Know and promote child development by understanding young children characteristics; the multiple influences development; and recognize and create appropriate learning environments where all young children thrive.
- Build, support, and engage family and community relationships through understanding and valuing diversity and all families and knowledge of the community; and create respectful, reciprocal relationships that involve all families in their children's education and development.
- Use effective communication in a professional setting.
- Work creatively with others, including culturally and intellectually diverse peoples; think critically; and demonstrate an appreciation for learning.
- Demonstrate a respect for others, coupled with an understanding of ethical behavior and civic responsibility.

Recommended Course Progression for Tier 1

Tier One Model Course Progression – 2.5-3 Year Program				
TERM	Course 1	Course 2	HS Credits	CT State Credits
1st Year				

Semester 1	ECED 1001		.5	3
Semester 2	ECED 1002		.5	3
		1st Year Credits	1	6
2nd Year				
Summer	ECED 2825		.5	3
Summer	ECED 0960 (or Accuplacer)		0-.5	0
Full Year	ENG 1010*		1	3
Semester 1	ECED 1303	ECED 2331	1	6
Semester 2	ECED 2515		.5	3
		2nd Year Credits	3-3.5	15
3rd Year*				
Summer	ECED 1376**		.5	3
		3rd Year Credits	.5	3
		Total Cumulative Credits	3.5-4.0	24

*It is recommended this course is taken in the 10th or 11th grade.

** Course can be taken post-graduation if necessary. (Post graduation courses require tuition)