**QUINEBAUG VALLEY COMMUNITY COLLEGE**

**Program Review**

**COLLEGE SELF-STUDY REPORT**

**College:** Quinebaug Valley Community College
742 Upper Maple Street
Danielson, CT 06239

**Discipline: Engineering Science and Technology Studies**

**Report Prepared by:**

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| Jakob Spjut |  | 7/29/2020 |
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**Report Submitted To:**

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| John Lewis | | |
| *Dean's Name* | *Signature* | *Date* |
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| *President's Name* | *Signature* | *Date* |

**Report Copy for Institutional Effectiveness**

**Received by:** Office for Institutional Effectiveness

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**Quinebaug Valley Community College**

**Academic Affairs**
**Baseline Program Review**

## 1) Mission Statement; Program/Discipline Outcomes

a. List the mission statement of your program or discipline.

The mission of the Engineering Science & Technology Studies Program is to be the preferred choice for northeastern Connecticut students and incumbent workers to broaden their education in College of Technology offerings. This includes access to grant programs and project work, successful transfer to four-year universities in STEM disciplines, and successful career employment placement.

b. List the Program or Discipline Outcomes.

Engineering Science

Program Objectives:

- Complete an Associate of Science degree in Engineering Science.
- Transition seamlessly into a Bachelor of Science Degree Program in Engineering with junior level status in the receiving institution as part of the College of Technology Engineering Pathway Program.

Student Learning Outcomes:

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

Technology Studies

Program Objectives:

- Complete an Associate of Science degree in Technology Studies;
- Transition seamlessly into a Bachelor of Science Degree Program with junior level status in the receiving institution as part of the College of Technology Pathway Program.

Student 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.

Technology Studies: Biomolecular Science Option, A.S.

In addition to the outcomes listed for the Technology Studies degree, students who complete the Biomolecular Science Option will:

- Understand and apply the scientific method
- Comprehend and apply basic techniques of scientific investigation
- Complete laboratory analyses, compile data, and construct technical reports
- Understand the classifications of organisms in the six kingdoms
- Complete a systematic study of human anatomy and physiology
- Understand and apply the principles of microbiology
- Understand the principles and implications of genetics and research

Technology Studies: Computer Aided Design (CAD) Option, A.S.

In addition to the outcomes listed for the Technology Studies degree, students who complete the Computer Aided Design Option will:

- Understand design software and demonstrate proficiency in using them for design in product development and architectural, mechanical, electrical, and civil design projects
- Demonstrate project management skills with interdisciplinary environments
- Understand design for manufacture and rapid prototyping techniques

Technology Studies: Environmental Science Option, A.S.

In addition to the outcomes listed for the Technology Studies degree, students who complete the Environmental Science Option will:

- Develop an understanding of the scientific basis for issues affecting the environment and their impact on society.
- Understand and be skilled at collecting, analyzing and presenting scientific data by various means including up-to-date technologies.
- Be able to use the scientific method for problem solving in biology, chemistry, geology, physics and environmental sciences, and be able to use this skill to address issues related to the environment.
- Research and assess the accuracy of appropriate information sources, involving both print literature and electronic sources including online databases and publications.
- Communicate knowledge and understanding of environmental sciences and related societal issues in appropriate written, oral and mathematical means.
- Demonstrate interrelationships and connections with other subject areas associated with a college-level education.
- Use a wide array of knowledge, principles and skills acquired in laboratory, field and lecture setting for use in transferring to baccalaureate degree program or for use in seeking further training toward a technical degree.
- Develop skills in biology, ecology, and environmental chemistry.
- Develop mapping skills using the latest GIS and GPS technologies.
- Develop an understanding of an ability to carry out microbiological testing of drinking and waste sewage.

Technology Studies: Lean Manufacturing and Supply Chain Management, A.S.

In addition to the outcomes listed for the Technology Studies degree, students who complete the Lean Manufacturing and Supply Chain Management Option will:

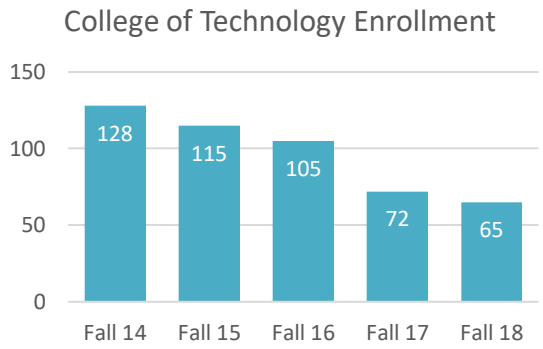
- Identify and utilize DMAIC problem solving methodology components
- Effectively participate in kaizen events within manufacturing environments
- Appreciate value in a process and identify and eliminate wastefulness in a process
- Calculate and analyze process related data to help drive improvement
- Maintain and sustain improvements within the manufacturing process area
- Understand the principles and culture of continuous improvement
- Act as a project team leader for a kaizen event and manage team dynamics
- Analyze process / project using lean tools
- Develop plans for improvements of process / project
- Document team project improvements for sustainability
- Understand the basic SCM principles and their benefits
- Demonstrate how to Value Stream Map the SCM
- Understand the supplier / customer roles and responsibilities
- Demonstrate how to describe the supplier base and types
- Understand supplier evaluations and metrics

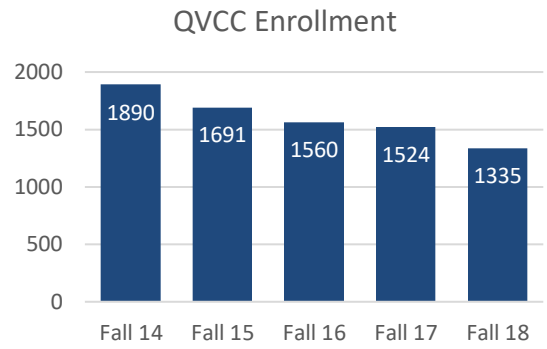
- Understand the role of quality and quality audits
- Understand the role of communication and collaboration and the importance of information flow
- Demonstrate the application of SCM in real-world situations
- Understand the composition and interactions of a SCM team
- Understand the concepts of quality improvement programs
- Understand the importance of partnerships with customers and suppliers and SCM logistics
- Manage the completion of a SCM application

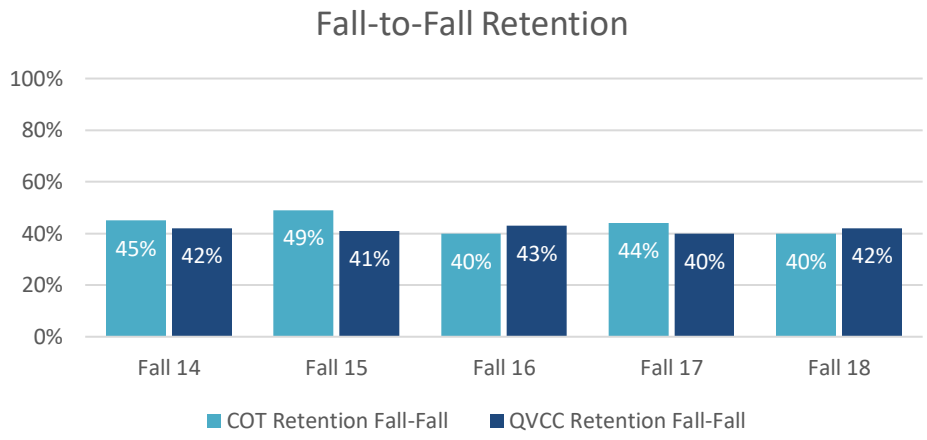
**2) Historical Enrollment Data**

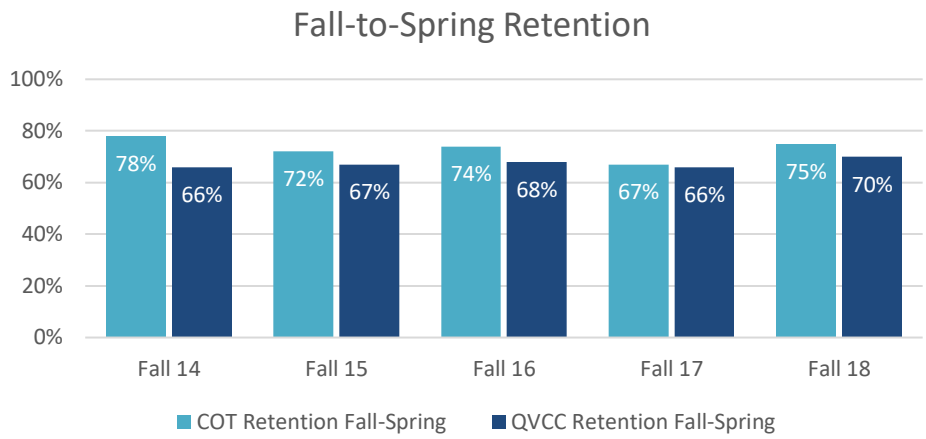
a. Provide five years of enrollment data and three years of retention data. List on ground and online (if any) separately.

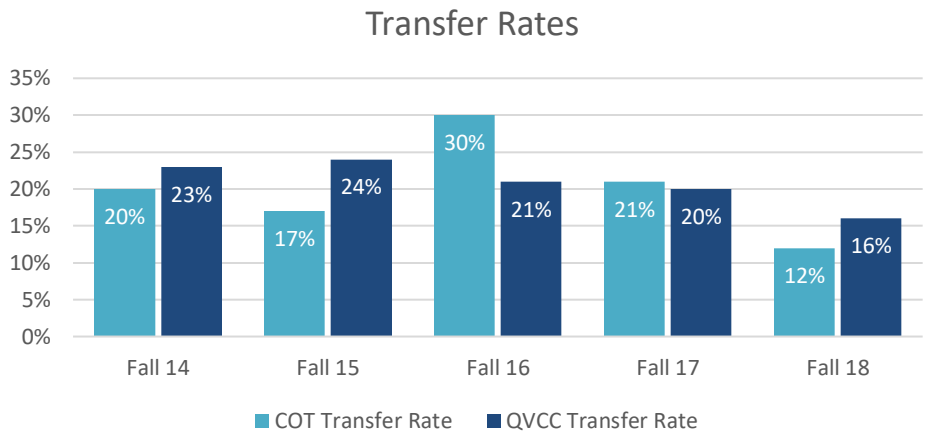
See the following charts:






b. Analyze the data and draw conclusions.

Retention and transfer rates are on par with the institution as a whole. Enrollment overall at QVCC is down, and enrollment in Engineering Science and Technology Studies is down even further. This is partly demographically driven and is seen throughout much of Connecticut. Another part of the shift is due to advising more students into our incredible manufacturing center. Students looking for job training to get a career can complete a one-year certificate program in manufacturing (either advanced machining or mechatronics) and get a decent job at many of our local manufacturing partners. In the past they would more frequently get advised into a Technology Studies Degree instead. The one-year manufacturing certificate programs satisfy the technical and directed elective requirements for a 2-year Technology Studies degree, providing a great opportunity for certificate graduates who may wish to continue their education. We should do a better job at promoting that opportunity to students. Engineering Science enrollment is also down, and we should also increase awareness through better promotion to current QVCC students, as well as promotion in the community, with area companies, and local high schools.

**3) Curriculum Review**

a. List all courses specific to your program/discipline that are in the catalog or have been offered anytime in the last three years. Note the semester each course was taught.

Engineering Science courses:

- EGR*111 Intro to Engineering – Fall 2017, Fall 2018, Fall 2019
- EGR*211 Engineering Statics – Fall 2017, Fall 2018, Fall 2019
- EGR*212 Engineering Dynamics – Spring 2018, Spring 2019, Spring 2020
- EGR*215 Engineering Thermodynamics – Spring 2018, Spring 2020

- EGR*118 Material Science – Spring 2017, Spring 2018, Spring 2020
- EGR*298 Special Topics in Engineering: MET2 – Spring 2017
- EGR*298 Special Topics in Engineering: Senior Design – Fall 2018
- EGR*298 Special Topics in Engineering: Guitarbuilding – Spring 2019, Spring 2020

The following Computer-Aided Design, Computer Science, and Manufacturing courses are primarily for other degrees or certificates, and not exclusive to Engineering Science or Technology Studies, but they are included here as they may be used to satisfy technical and directed electives.

Computer-aided design courses:

- CAD*110 Introduction to CAD – Spring 2019, Fall 2019, Spring 2020
- CAD*114 Architectural CAD – Spring 2019, Spring 2020
- CAD*117 Principles of Residential Design – Fall 2019
- CAD*220 Parametric Design (SolidWorks) – Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020

Selected Computer Science:

- CSC*106 Structured Programming – Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2018, Spring 2020
- CSC*124 Program Logic/Design w/Python – Fall 2018, Fall 2019

Note: in response to one of our transfer partners, University of Connecticut (UCONN), moving their Intro to Programming course for Engineers over to Python, we have been advising students interested in transferring to UCONN to enroll in CSC*124 with Python instead of CSC*106 with C++. UCONN still accepts CSC*106 to fulfill their pre-requisite, but learning Python makes the transfer experience a bit smoother. Both are listed on UCONN's transfer equivalency website (see https://admissions.uconn.edu/apply/transfer/transfer-credit/equivalencies#/Quinebaug%20Valley%20Cmty%20Coll/CSC*).

The manufacturing courses that have been offered within the last 3 years are listed here:

- MFG*105 Manufacturing Math II
- MFG*109 Introduction to MasterCAM
- MFG*115 Safety in the Workplace
- MFG*120 Metrology
- MFG*124 Blueprint Reading I
- MFG*125 Blueprint Reading II
- MFG*133 Math for Electrcty & Electrncs
- MFG*138 Digital Fundamentals
- MFG*140 Robotics
- MFG*142 Electronic Circuits & Devices
- MFG*143 Industrial Motor Controls
- MFG*144 Hydraulics and Pneumatics
- MFG*145 Electronic Variable Speed Dr.
- MFG*146 Programmable Logic Controllers
- MFG*150 Intro to Machine Technology
- MFG*151 Manf Mach: Drill Press & Saw
- MFG*152 Manf Mach: Grinding
- MFG*153 Manf Mach: Benchwork
- MFG*154 Manf Mach: Lathe I
- MFG*155 Manf Mach: Milling I
- MFG*156 Manf Mach: CNC I
- MFG*159 Industrial Maintenance
- MFG*162 CNC Maint. & Repair I
- MFG*165 Intermediate Machine Tech
- MFG*177 Machine Technology Fundamental
- MFG*178 CNC Fundamentals
- MFG*254 Manf Mach: Lathe II
- MFG*255 Manf Mach: Milling II
- MFG*256 Manf Mach: CNC II
- MFG*277 Advanced Machine Technology

We transitioned the Engineering offering of Hydraulics and Pneumatics (EGR*116) to an equivalent manufacturing offering (MFG*144) for Fall 2018 to better fit with the Advanced Manufacturing: Mechatronics certificate that requires it. The engineering version didn't have anything to recommend it

over the manufacturing version, and did not transfer to anyplace as a specific course, so the manufacturing version will be offered going forward.

- EGR*116 Hydraulics and Pneumatics – Spring 2017, Fall 2017
- MFG*144 Hydraulics and Pneumatics – Fall 2018, Spring 2020

Is there a syllabus on file in the Academic Affairs Office for each course specific to your program that includes course outcomes and processes for assessment? **YES**
If the answer is "NO," list the courses below that lack outcomes and assessment; provide a plan and timeline for completing this work. **N/A**

b. List any online classes in your program/discipline. How often are each offered, and what are the plans for future online classes? What is the rationale for this plan?
The only fully online course that the engineering program offers is:

- EGR118 Material Science – an elective that is offered as requested by students.

In response to COVID-19 safety measures, all courses that can be offered remotely will be for the coming year, starting in Fall 2020. The plan is to run live remote online courses, with content to be presented online, and regularly scheduled meetings every week so that students have the chance to interact with the instructor and get questions answered directly. The current plan for those courses is:

- EGR111 Intro to Engineering – Fall 2020
- EGR211 Engineering Statics – Fall 2020
- EGR212 Engineering Dynamics – Spring 2021
- EGR215 Engineering Thermodynamics – Spring 2022

Those courses have also been submitted to the Academic Dean as possibilities to share seamless cross-enrollment with other community colleges who offer the same course. This could provide QVCC students with access to additional sections to take the course, and it could also help bring in additional students to QVCC engineering courses. Observing student enrollment and response to this altered modality will inform the decision about future teaching modality plans.

**4) Program/Discipline Delivery Strategies**
Is the program/discipline semester course sequence listed in the catalog?
The overall degree requirements are available on the online catalog (see http://qvcc.catalog.acalog.com/preview_program.php?catoid=8&poid=352&hl=engineering&returnto=search ). There are semester course sequences available in DegreeWorks for student advising, but not on the public website at this time. This should be addressed so it is more easily accessible to prospective students.

Has the sequence been followed for the current and past two academic years? Yes.

How does the sequence serve part-time students?
We make sure that our sequential courses, like EGR211 and EGR 212, run one semester after the other. This ensures that part-time students will be able to take the next course in the sequence while the material from the previous course is still relatively fresh in their minds. We also ensure that the scheduled class time of the courses in a sequence stays the same from Fall to Spring semesters, so that part-time students don't have to rearrange their work schedules from semester to semester to attend class.

Do you coordinate course offerings with other programs?
Yes, we coordinate scheduling of math, physics, and chemistry courses with the relevant departments to ensure that our courses don't conflict with each other. This is especially important for a small college like QVCC, which has fewer sections of required classes offered than larger schools do. For example, we offer EGR*215 one year and CHE*122 the next so that a 2-year student has a chance to take either

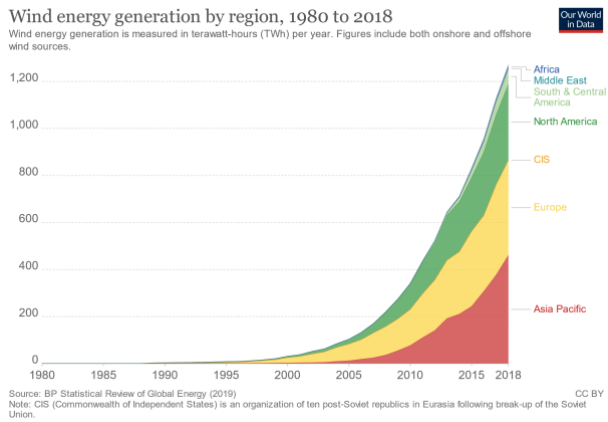
course (the requirement in either/or), depending on their academic and career plans. We also coordinate with manufacturing to allow interested students from manufacturing to get started in engineering, and to allow engineering students to take manufacturing electives. Given restrictions on lab availability there are still scheduling conflicts, but especially if specific students are interested in specific classes, we do what we can to allow them to complete the courses they're interested in.

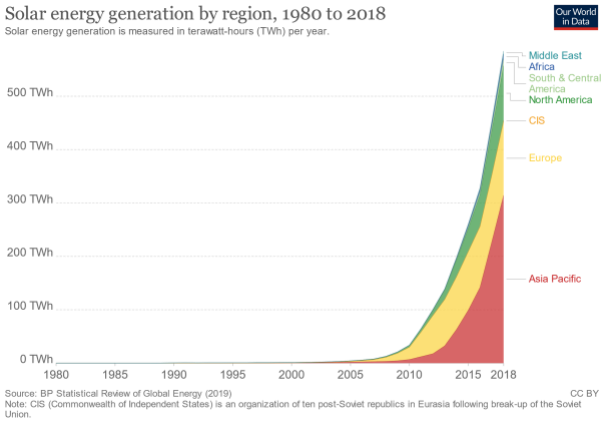
**5) Trends**

a. What have been two major national and/or state trends specific to your program/discipline during the current and past two academic years?

1. Increased demand for industrial and manufacturing engineers. A manufacturing boom has left companies like Electric Boat, Pratt & Whitney, and Sikorsky needing technically skilled employees, along with their subcontractors, many of which are also in Connecticut. QVCC's on-site manufacturing center makes us a great location for future industrial and manufacturing engineers to get their start with hands-on experience that is valuable on the job.

2. Sustainable energy is an area of active development and major progress. See the following figures from https://ourworldindata.org/renewable-energy about the increased use of wind and solar energy.




We have incorporated and revised a renewable energy module to the Intro to Engineering course as one way to address this and provide up-to-date content knowledge to our students.

b. What are the emerging trends that will dominate during the next three years? (Do not include enrollment or retention issues here.)

While many engineering disciplines are predicted to experience average job growth over the next 10 years (around 4% or so), demand for Industrial Engineers is predicted to increase by an above average 8% (see https://www.bls.gov/ooh/architecture-and-engineering/industrial-engineers.htm). As mentioned previously, QVCC is uniquely positioned to serve students in this area.

The demand for Data Science looks to be increasing as well (see https://data-flair.training/blogs/data-science-job-trends/). There is a newly created College of Technology (CoT) Technology Studies Degree option in Data Science that QVCC could adopt to meet this demand. Considering the reduced enrollment, it is hard to justify adding on additional courses that might struggle to fill. Student demand should be gauged to help determine if adopting a 2-year Data Science option is the way to go, or if it might be better to focus on Engineering Science, and add on a course or two to provide students with some relevant skills.

c. What transfer articulation agreements exist with other institutions? (List each and include expiry data.) What are your future plans for transfer articulation?

We have transfer agreements through the Connecticut State College of Technology (CoT), which coordinates transfer and articulation between public and private 2-year and 4-year colleges and universities. That means QVCC's Engineering Science and Technology Studies degrees follow the same

template that all other State Community Colleges in CT follow, and transfer between 2-year colleges in Engineering Science and Technology Studies is straightforward, with no loss of credit.

The Technology Studies degree transfers seamlessly to Central Connecticut State University.
Some of the Tech. Studies options transfer to other College of Technology institutions, including Tech. Studies: Environmental Science option to Eastern Connecticut State University.

The Engineering Science degree transfers seamlessly to: Fairfield University, University of Bridgeport, Southern Connecticut State University, Central Connecticut State University, Eastern Connecticut State University, University of Hartford, and University of Connecticut. These transfer pathways make it fairly easy for QVCC students to transfer their Engineering Science degree to other 4-year institutions as well. We plan to continue supporting College of Technology transfer pathways going forward.

**6) Institutional Barriers**

a. What are the major institutional barriers to success that students experience in your program or discipline? (Focus on teaching, learning, and curricular issues.)

An issue that frequently impacts student learning is the widely varying levels of mathematical and technical competence they have at the start of any given course. Gender imbalance in STEM fields can unintentionally impart regressive ideas about professional gender roles. COVID-19 forcing increased distance learning means many students might be forced into a class modality that isn't their first choice, which might cause issues with home access to technology and workspace.

b. What is your plan to address these issues?

Varying levels of mathematical and technical competence: the program coordinator has joined the student success council to help address various of these issues across the college. In program courses, increased use of scaffolding and self-assessment towards the start of every class can help students identify problem areas and seek additional help early on.

In fall 2017 we began making a concerted effort to address gender imbalances in engineering science classes. With only one full-time engineering professor who was male, female representation in engineering classes was somewhat lacking. That professor was fortunate to meet capable female graduate students at UConn during his Joule Fellows research program, and subsequently had one of them (Phoebe Szarek) give a guest lecture on her research at QVCC (fall 2017), and lab tours of the Interdisciplinary Mechanics Laboratory (a biomedical lab) to his class in subsequent years (fall 2018, 2019). When searching for video lectures or demonstrations to show, we could frequently find one of equal or better quality made by a woman, if we just thought to keep looking. In discussions with educators at UConn we were exposed to research that suggests that having more than one woman in a group improves group dynamics, and drastically reduces the likelihood that the woman is stuck with administrative tasks. In response we started arranging group projects accordingly, as much as class demographics allow. We have been pleased with some of the results, even if our small number of students at QVCC hasn't produced definitive results. It also has the benefit of exposing the male majority in engineering classes to more female technical competence than previously, which hopefully will help avoid or counteract problematic opinions or assumptions that can be unfortunately common.

We're pursuing other modes of online labs and alternative assignments that don't require students to have access to a powerful computer to run CAD programs on at home. We're also looking at loaning out laptops to students as they might need for specific courses that might need that capability. The student success team is involved in helping to find out which students have additional distance learning needs and satisfy them as needed. Pedagogically, we are pursuing remote learning with asynchronous videos and readings to deliver content, and synchronous sessions used primarily for problem solving and helping students trouble-shoot their own process.

**7) For programs only: Advisory Board**

a. List current members with contact information. List dates of last two meetings. Append minutes for those meetings.

See appended minutes for the following meetings with current members with contact information:

- AMTC Advisory Board Meeting January 16, 2020
- Mechatronics Advisory Board Meeting March 28, 2019

b. Discuss the three most important ideas or feedback you have received from your Advisory Board. How have you responded to that input?

Much of the Advisory Board input has been focused on our newer manufacturing certificates, but the feedback that most directly relates to the Engineering Science and Technology Studies degrees is:

1. **Practical skills are essential**. It's a common theme that employers are dismayed by students coming out of 4-year engineering programs who seem to lack many basic practical technical competencies. We have responded to this by advising students into hands-on MFG courses where appropriate and including projects and practical skills across engineering and CAD courses. We have also incorporated CAD simulation in engineering coursework to connect the theoretical to some modern applications of that theory. Our special topics courses in guitar building and in senior design provide project-based ways for students to learn the practical skills they need to complete the project. Finally, our Robotics club provides an additional way for students to acquire practical skills they need to compete in competitions, including the NASA CT Space Grant Consortium's Community College Quadcopter Challenge.
2. **A.S. degrees are not essential**. Employers look for skills over 2-year degrees. An associate degree does show that the student has some "skin in the game," but without the relevant skills, doesn't mean much. Notably, 4-year engineering degrees are essential and our 2-year engineering degree transfers seamlessly into 4-year degree programs. While we still emphasize the utility of degrees (they can provide pay increases, they provide all-around skills), we have responded to this feedback by making sure students are aware as they're looking for jobs and planning their career that their educational pursuits match with their career goals.
3. **Soft skills are sometimes overlooked**. This is a problem with students who just want to do technical things, so they take technical courses, get a technical job, and then are held back by lackluster writing or presenting skills. We have responded by teaching groupwork methods in some technical classes like Intro to Engineering, and extolling the virtues of pursuing A.S. degrees that requires classes like English Composition and Public Speaking.

c. Discuss input that you have received that you are unable to respond to and why.

We received feedback that some specific Technology Studies options are not beneficial over a general Technology Studies degree with relevant courses. We did discontinue the Plastics program, as we had no current students for years, but some of the others mentioned, like Tech. Studies Lean Manufacturing and Supply Chain Management, A.S. are still around, as the statewide College of Technology curricular process got somewhat interrupted with COVID-19 and other issues were more pressing. Discontinuing some additional options to simplify degree offerings is still planned for the near future.

**8) Instructional Support**

What are your current classroom, media, and IT needs? How will those needs change in the future? What support will be necessary to meet those needs?

Our current lab needs are being met by the existing engineering lab, 3D-printers, lasercutter, materials tester, guitarbuilding lab equipment, and various handtools. Our current media and IT needs are being met by the existing computer labs and engineering laptop carts, along with various library resources. Our current classroom needs with high quality projectors and adequate board space and student work space are also being met. In Fall 2020 semester we will see how the plans we have in place for distance

learning work in practice, and may need additional equipment to support students who don't have what they need to learn remotely.

**9) Budget**

What is your current budget and how is it spent? Are there any crucial budget needs you can forecast now that will emerge in the next three years?

The current Engineering Science & Technology Studies budget is $19,500 per year. This is mostly spent on maintenance for various 3D printing and materials testing machines and supplies for 3D printing, laser cutting, soldering, etc. The budget has decreased from over $30,000 in 2016, due to reduced enrollment. However, in adapting to this reduced budget, we can likely remain stable at the current budget for the next 3 years, even with increased enrollment.

**10) Public Disclosure**

Does program/discipline information published on the website provide sufficient information to allow students and prospective students to make informed decisions about registering for classes within the program/discipline?

YES, see https://qvcc.edu/programs/academics/academic-degrees-certificates/engineering-sci/and https://qvcc.edu/programs/academics/academic-degrees-certificates/tech-studies/

**11) Resource requests/suggestions**

List resources that will be needed over the next 5 years; financial, physical, personnel

If we end up pursuing the Data Science degree, we will need additional expertise to offer the courses, but that may be available from existing fulltime math or computer science professors, or adjunct professors. If by 2025 we can increase enrollment in Engineering Science and Technology Studies back to 2015 levels, the current allotment of financial, physical, and personnel resources should be sufficient. Few adjuncts are used currently, so there is room to increase enrollment by adding adjunct instructors without needing another fulltime instructor.

**12) Final Comments**

The instruction and the transfer opportunities from the QVCC Engineering Science and Technology Studies degrees are high quality. Narrowing the breadth on some of the offerings in response to industry input can help focus our efforts on a smaller number of important classes. Remote learning provides a unique opportunity to overhaul some curriculum to hopefully better meet the needs of our students. Increased promotion and marketing of the degree options to current and potential students may help turnaround decreasing enrollment and allow more students to benefit from those opportunities.

# AMTC Advisory Board Meeting January 16, 2020

**Location**: Quinebaug Valley Community College, W207
**Called to Order**: 9:00am
**Adjourned**: 10:30a, followed by tours
**Present**: Steve LaPointe, Jodi Clark, Sandy Gould, Rose Ellis, Monique Wolanin, Kylee Carbone, Justin Meyers, Patrick Glennon, Brett Casper, Kayla Warner, Andy Morrison, Jakob Spjut, Mark, Jason Pelletier, Jay Biery, Amy Osorio, Joe Carlone Jr, John Burns
**Guests**: Chris Jewell, Monique Wolanin

**Agenda Topic**: Introductions
**Presenter**: Steve LaPointe
**Discussion:**

- Introductions of new members
- Introduction of new QVCC CEO Rose Ellis

**Agenda Topic**: AMTC Update 2012-present
**Presenter**: Steve LaPointe
**Discussion:**

- See powerpoint for enrollment numbers, job placement etc.
- We are currently pushing Spring enrollment for Mechatronics courses. Daytime enrollment continues to be an issue so we are not offering any shop classes this Spring, but we are able to fill the gaps with the EWIB Pipeline courses. We have added Intro to MasterCAM to push to our grads. We are also offering AutoCAD this semester.
- Monique Wolanin spoke about the Endowment Scholarship and more sponsorship opportunities available in the AMTC. Haas has also provided us with scholarship money that is incentive based: Dean's List, Retention, Graduation all receive a small scholarship. A student can receive up to $650 this way.
- The question was raised how our enrollment numbers compare to the other Centers in the state.
    - These numbers are not available. Because each school registers differently for these programs it is hard to compare anyway—Rose explained that Asnuntuck, for instance includes their Second Chance Pell students in their numbers.
    - It was expressed by multiple industry partners that QVCC is doing their curriculum right because QVCC finds the needs of their partners and matches their curriculum instead of expecting partners deal with curriculum not geared for them as some of the other Centers do.
- Credit vs. noncredit: employees who take non-credit Blueprint Reading which QVCC provides on-site can take the college's Prior Learning Assessment to gain credits for the class.
- It was recommended that businesses should get on-site trainers of their own that then also work for QV's non-credit. Retirees are also encouraged to apply. QVCC could provide a Train the Trainer class.

**Agenda Topic**: Non-Credit Workforce Development
**Presenter**: Andy Morrison
**Discussion:**

- As mentioned, trainings can be offered on-site at the business. However, some trainings are better held off-site, i.e. sensitive topics.
- Trainings can be fully customizable.

- Contact Andy at amorrison@qvcc.edu to be added to his distribution list about Spring offerings. More can be found at www.qvcc.edu/training.
- A survey was sent to businesses to narrow down offerings out of the 100 workshops QVCC can offer.

**Agenda Topic**: Colin Cooper Visit
**Presenter**: Steve LaPointe
**Discussion:**

- The new State of CT Chief Manufacturing Officer Colin Cooper came to visit QVCC in November.
- Steve gave him a tour and a powerpoint was created to show Cooper our numbers, etc. He was very impressed.
- Cooper used to run Whitcraft so he is very familiar with the manufacturing needs in our community.
- He expressed that there will be a couple of funding pushes going forward: Apprenticeship funding as well as On the Job Training and a return of the Step Up program.

**Agenda Topic**: Technology Studies 5 Year Study
**Presenter**: Jakob Spjut
**Discussion:**

- Jakob is in the middle of completing his 5-year Self Study for Technology Studies and Engineering. Both AMTC certificates can be used directly towards a Technology Studies A.S., which transfers seamlessly to CCSU.
- Conversation was had that most companies look for skills more than an A.S., although it does show that the employee has skin in the game.
- QVCC may simplify the Tech Studies degree and eliminate the options offered now.
- Plastics has been discontinued.

**Agenda Topic**: Eastern Advanced Manufacturing Alliance (EAMA)
**Presenter**: Chris Jewell
**Discussion:**

- EAMA has been very busy lately. There are now 72 manufacturing companies and several non-manufacturing partners such as QVCC. Membership is $100 for the first year and $200 after that.
- They are working on adding forums on their website geared to different fields (HR, Purchasing etc).
- They have a monthly newsletter and have several events coming up over the next few months.
- You can contact them to become a member at eamainc@gmail.com

**Agenda Topic**: Town Wide Manufacturing Open House Night
**Presenter**: Steve LaPointe
**Discussion:**

- Steve, Jodi and Sandy are working with the Putnam Economic & Community Development Commission to plan a town-wide manufacturing night on April 2, 2020. Many Putnam businesses are already on board and we hope to extend to other towns after we see how it goes. This was something Cooper was very excited about during his visit.

# Mechatronics Advisory Board Meeting March 28, 2019

**Location**: Quinebaug Valley Community College, W207
**Called to Order**: 8:03am
**Adjourned**: 9:30a,
**Present**: Steve LaPointe, Jodi Clark, Jesse Gervais, Phil Lemieux, Carol LaBelle, Ken Long, Brian Grossguth, Paul Zemienieski, Jakob Spjut, Olivia Sheperd, Chris Eber, Austin Warner,Matthew Bartlett, Sandy Gould, Andy Morrison,
**Guests**: n/a
**Absent**: Al Morrison, Megan Hancock, TJ Billiard, Anita Santerre, Kinsey Horne, Ed Chamberland, Larry Acquarulo, Bruce Bumpus, Alan Froslie, Brian Zurowski, Bill McManus, Deb Rimkus

**Agenda Topic**: Introductions
**Presenter**: Jody Clark/Andy Morrison
**Discussion:**

- Introductions of new members
- Andy Morrison shared his new training brochures
- Andy requested companies send him their retirees to become non-credit instructors.

**Agenda Topic**: Manufacturing Update
**Presenter**: Jodi Clark
**Discussion:**

- The Machining certificate program has changed to a 31-credit, a la carte curriculum. Naugatuck and potentially Housatonic plan on following suit to our new curriculum.
- The AMTC will be holding a Reflection Event on June 20 for local business supporters.
- We've created new advertisements/ videos for both programs.
- The AMTC is holding a Manufacturing Open House April 27 9a-1p as part of a system wide initiative. There will be interactive workshops and shirt giveways.

**Agenda Topic**: Mechatronics Update
**Presenter**: Jodi Clark
**Discussion:**

- We purchased workbenches to help with our storage needs.
- We purchased a projector
- We have multiple brands of robotic arms coming in the next 8-9 weeks. This will provide a wide range of training abilities
- Jodi reviewed most recent program stats. Paul updated that Dan Mahier, an Intern at Lee, has been hired full time and doing well

**Agenda Topic**: Curriculum
**Presenter**: Jodi Clark
**Discussion:**

- Robotics and Digital Fundamentals running in Fall 19 because of grant requirements
- We could use some more instructors. Olivia mentioned they had a potential instructor at Frito named Joe Deedee
- Should we keep CNC Repair as? Should it be an elective? Should we add Machining?
    - Paul and Matt: We call out to get our CNCs fixed
    - Matt: an overview in another course may be good, but a full class is not necessary
    - Soft skills are wanted (writing for instance)

        - Jakob: maybe add more writing assignments? Or push Tech Studies AS?
        - Matt: Technical Writing?
        - Jodi: Maybe something on the noncredit side. Manufacturing students have to get buffed up on this as well.
        - Carol: American Job Center offers this training for free
        - Paul: Dan has soft skills; better to have him around vs. someone with stronger mechatronics knowledge and no soft skills (communication, troubleshooting,etc)
    - Olivia: Machining addition would be good, helps with safety. Basic troubleshooting class as well. Brian does this training at Frito.
    - Chris: Needs "multicraft mechanics": a little CNC in first semester being more basic, then PLC, IMC, etc
    - Matt: fitting shafts, bearings
    - Jesse: I agree with everyone. Robotic designers should be able to manufacture it themselves.
    - Jodi: Machine Technology Fundamentals maybe?
    - Jakob: Maybe add more options/electives to program curriculum?
    - Chris: blueprint reading. Fix robots way more than CNCs
    - Paul: Replace with troubleshooting/soft skills course
    - PUBLIC CONSENSUS: CNC NOT NEEDED
- Third Semester Certificate? 3-5 classes:
    - Jakob: Make other courses pre-reqs for Troubleshooting
    - Chris: do Troubleshooting in 3rd semester. Electrical, ethernet, safety circuitry
    - Matt: structure troubleshooting
    - Ken: more group-based, project learning
    - Jakob: I do DISC method in Intro to Engineering before the group project. Spent about 1 full class on it.
    - Paul: that could be part of the troubleshooting class
    - Chris: Doesn't need to be a full class
    - Paul: Maybe get together a focus group to flesh this out
    - Austin: Third semester does bring PLC, IMC etc together
    - Jodi: capstone or project or 3rd semester would be advanced
- Sandy: Internships could help with a lot of this

**Agenda Topic**: Interns
**Presenter**: Jodi Clark
**Discussion:**

- Jodi: getting to apply the knowledge helps it click
- Paul: We use a temp agency. Pay $15-16/hr. Sandy asked what job title he used, Paul said he didn't need one. Spirol pays interns $14-16.
- Most companies prefer having summer interns like Lee did with Dan. Some also do winter break interns. We would like to see some companies support students part time during school year as well (Matt said he likes part-time: less money)
- Jodi: We would like to create a intern agreement. So students don't drop out of program upon employment like a lot of manufacturing students do.
- Consensus that intern resumes should go to HR Directors

**Agenda Topic**: CAPRA
**Presenter**: Jodi Clark
**Discussion:**

- Grant for robotic arms and training on arms. Jodi and Jakob are going for the training
- There will be an apprenticeship part to this

Meeting adjourned at 9:30