

CTE Academic and Technical Curriculum

INTEGRATION

to Meet the Common Core

By Tiffany Wright, David Thomas and Scott Rogers

As a high school student, would you get on a school bus at 6 a.m., travel to a school with peers from a county that spans over 900 square miles, only to arrive back at home around 5 p.m.? This is a regular school day for many students who attend York County School of Technology (YCST). For those students who participate in extracurricular activities or seek additional academic support, it often means being away from home for 14 hours per day.

YCST, one of only a few comprehensive technical high schools in Pennsylvania, is located in the south central part of the state, currently serving a very diverse population of 1,700 students from rural, suburban and urban areas of 14 different school districts. YCST prepares students to take advantage of any possible future opportunity by working with them to help them grow in their skill levels. The school has become a desired school of

attendance in York County, where for the 2014–2015 school year, 924 applications were received for 527 slots.

As a school that historically has not made adequate yearly progress according to traditional achievement measures, the students have been increasingly able to achieve proficient and advanced scores on their respective assessments within their chosen career fields. Each year, the examinations become more rigorous, but students at YCST rise to the challenge.

College- and Career-ready Students

In the recent article, “Will the Common Core Derail True College and Career Readiness?”¹ Paul Barnwell expressed concern over the implementation of the Common Core State Standards (CCSS), and how the expectation of each student achieving the standards could negatively impact his or her access to appropriate and relevant career training. He argued that not every student can or should at-

tend a four-year college upon graduating from high school.

The faculty and staff at YCST could not agree more with some points of his argument. However, we at YCST are working toward each student having the ability to choose *any* option upon graduation, i.e., going into the workforce, attending a two- or four-year postsecondary institution or enlisting in the military. Career and technical education (CTE) has become the hallmark of what high school education should be. While it is often considered to be mainly hands-on, the experience for students at YCST goes beyond that stereotype to challenge students intellectually. In the book, *Implementing the Framework for Teaching in Enhancing Professional Practice*, Charlotte Danielson et al., state: “Student engagement may be hands-on, involving physical activity, but more important, it should be minds-on, involving intellectual activity.”²

President Obama and U.S. Secretary of Education Arne Duncan have stated the importance of students graduating college

and career ready. This article will outline the ways in which YCST is working toward this goal, tracing work that began before the implementation of the Common Core State Standards (CCSS) and documenting current work to assist each student in mastering the standards in order to graduate college and career ready.

Student Instruction

How do the teachers at YCST work with the students, many of whom enter the school with learning disabilities (approximately 30 percent of all students in the school) or gaps in learning of math and English skills? One way is through training the faculty and implementing the MAX (which stands for Motivation, Acquisition and eXtension) teaching model.³ One of the focuses of this training model is to provide educators with content-literacy-based instructional training.⁴ As part of their training, teachers are paired with a MAX teaching professional to complete

in-class coaching during the implementation stage.

The training model and the function of YCST are a perfect match for preparing teachers to work with students to reach proficiency in the Common Core. Historically, students struggled in the area of non-fiction literacy skills (Standard 1.2—Reading, Analyzing and Interpreting Text).⁵ YCST serves as the ideal place to implement this standard, as each student has deep exposure to non-fiction texts through their technical-area textbooks, repair manuals, computer-based manuals and materials, etc.

Academic and technical teachers at YCST continue to work with one another to align curricula and common terminology in order to help students meet the CCSS and be college- and career-ready. The following is a list of examples of collaboration and additional training to provide the most rigorous and coordinated efforts to challenge and enrich each student at YCST.

1. Beginning with the 2010–2011 school year, YCST began adding honors and AP-level courses to its academic course offerings. The list now includes the following honors classes: English 9–12, U.S. History, Civics/Government, World History, Algebra II, Geometry, Chemistry and Biology. It also includes these AP courses: Calculus, Computer Science, English Language and Composition, English Literature and Composition, Psychology, U.S. Government and U.S. History. Future plans are to offer AP Chemistry and AP World History.
2. In the summer of 2012, technical teachers received training and worked together to implement a more integrated curriculum model for all the technical areas to include common terminology, especially in the area of math.

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Academic teachers were included in this training and curriculum development in order to coordinate the terminology and to understand the technical vocabulary that could be incorporated into the academic areas.

3. In the summer of 2013, technical teachers received training to incorporate the best practice of using interactive notebooks to allow for better content literacy, common curriculum, cross-curricula alignment and common assessments.

Hans Meeder and Thom Suddreth indicated in their report, “Common Core State Standards & Career and Technical Education: Bridging the Divide Between College and Career Readiness,” that technical and academic educators collaborating in structured professional development sessions has improved the overall curricula integration with the CCSS.⁶ The practical nature of the standards allows for technical and academic teachers to have similar goals to move toward with students, maneuvering each one closer to achieving the standards in math and literacy.

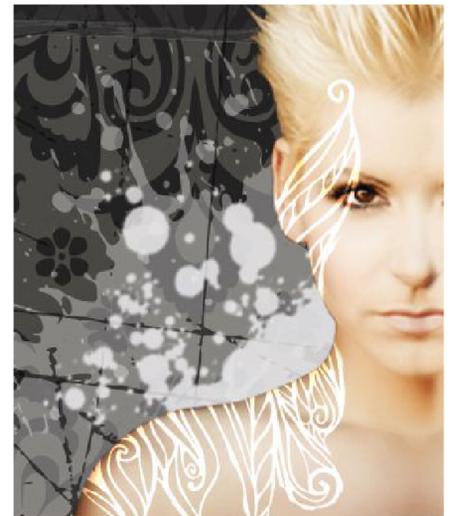
Recently at YCST, a math and science teacher collaborated with the Engineering Technology teacher to develop and implement STEM-related lessons across all three curricula. The teachers wanted to communicate to students and share a best practice with faculty on how subject areas and technical programs can work together to deliver true integrated lessons.

The faculty and staff at YCST would argue that a comprehensive CTE setting is perfect for integrating the CCSS. York County faculty members are dedicated to each student’s growth, and collaboration among technical and academic teachers will, by default, provide CTE high school graduates with the best skill set to be prepared for whatever their future holds.

YCST currently tracks graduates’ endeavors after leaving high school. From the class of 2014, 102 students were accepted to 53 different colleges and postsecondary institutions, including: the Automotive Training Center, the Culinary Institute of America, Kutztown University, Millersville University, Pennsylvania College of Technology, Temple University, University of Pittsburgh, West Chester University, York College of Pennsylvania and York Technical Institute. Students not attending postsecondary education have joined the workforce full time, some work and attend college part time, and others are serving in the military.

Increased Rigor in Technical Programs

Two technical programs have evolved to increase rigor and better prepare students to be college- and career-ready: Mechanical Drafting has transitioned to Engineering Technology, with students completing several Project Lead the Way (PLTW) engineering courses as integrated curriculum components of the program. In addition, Architectural Drafting students complete a Civil Engi-



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The structure of York County facilitates integrated learning between technical programs. For example, the students in the Engineering Tech program will swap places with students in Precision Machining in order to provide the future engineers with hands-on experience

machining objects they have designed, and the Precision Machining students gain experience utilizing AutoCAD to produce shop drawings.

Another technical program that experienced a similar transition was Graphic Arts, which traditionally focused on producing print materials. The new

Communications Technology program includes online communications, desktop publishing skills on Mac computers and a state-of-the-art video production lab, which was recently constructed by YCST carpentry students. Activities in this new lab will integrate writing and literacy skills as students create scripts and storyboards in student-produced video productions.

Several other programs are placing more emphasis on higher-order skills, such as the Carpentry program. Students do more job-estimating, use construction calculators that are employed in industry and earn a Certificate of Achievement from the International Code Council (www.iccsafe.org).

The YCST Information Technology (IT) Academy technical program is also on the move, with four instructors preparing 200 students for the ever-changing world of IT. Rather than students focusing on one specific IT field for four years, students now rotate through a four-field pathway specialization program that includes programming and interactive media, network systems and cyber security, electronics and IT support, and IT systems management, leading to students selecting a specialization area for their junior and senior years. For example, the students selecting the networking program set up actual Cisco routers and switches like those used in industry today. IT students earn industry certifications and graduate with a wide range of skills, with many going on to postsecondary education and others entering the workforce as technicians.

To facilitate the preparation for state-mandated standardized testing of the Common Core, YCST implemented an A/B-day schedule with four extended periods per day. This allows for longer time in the technical classes by combining periods, and the new schedule provides year-long academic classes to better prepare students for Pennsylvania's Keystone exams. In addition, academic teachers at YCST created the optional Keystone Bootcamp program, which garnered high attendance after school, with attendance ranging anywhere from 20–70 students, depending on the subject area.



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In preparing all students to be college- and career-ready, YCST strives to offer rigorous academic instruction that will enable students to be successful in postsecondary education experiences. YCST's technical programs are structured to have multiple exit points, providing students with the skills that allow them to enter the workforce during their senior year or after graduation, and these programs enable students to be prepared to further their studies in their chosen technical field if they desire.

The ongoing innovations and strategies at YCST illustrate that students attending comprehensive technical high schools are in the most opportune environment to leave high school with the skills outlined in the Common Core, as well as for a successful future. **Tech**

Tiffany Wright, Ed.D., is the chair of the Educational Foundations Department at Millersville University. She can be reached at tiffany.wright@millersville.edu.

David Thomas, Ed.D., is the director at YCST. He can be reached at dthomas@ytech.edu.

Scott Rogers, M.S.Ed., is the assistant director at YCST. E-mail him at srogers@ytech.edu.

ENDNOTES

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