MERCER COUNTY TECHNICAL SCHOOLS

STEM Academy

Arthur R. Sypek Center

Science and engineering occupations lead to economic competitiveness in an increasingly globalized world. For any 21st century economy to prosper, it is essential to maintain a science and engineering workforce of sufficient size and quality. These professionals are also crucial for addressing imminent challenges such as international security, global climate change, and domestic and global health. Of the top 10 highest-paying college majors, seven of them are in engineering.

Our Engineering program engages students in open-ended problem-solving, where they learn to apply the engineering design process to solve real-world problems that make the world a better place through innovation. Students will utilize the same industry-leading technology and software present in some of the world's top companies. They will be immersed in design as they investigate topics such as sustainability, forces, structures, circuit design, manufacturing, and the environment. This pathway includes a rigorous series of courses designed by Project Lead The Way (a nonprofit STEM education program taught across the U.S. and endorsed by the nationally recognized College Board). The courses include Introduction to Engineering Design, Principles of Engineering, Civil Engineering & Architecture, Digital Electronics, and Computer Integrated Manufacturing. All STEM Academy students join their respective Career Technical Student Organization, TSA - Technology Student Association, and are continually challenged as they compete in local, regional, and state-level competitions such as Tests of Engineering Aptitude, Mathematics and Science (TEAMS), TSA VEX Robotics Competition, and LEAP (Leadership. Education. Achievement. Personal Growth).

All of these exposures provide our students with the opportunity to learn about various engineering disciplines before beginning postsecondary education or careers. In year one (1), students will begin their journey through Project Lead The Way curriculum and have the opportunity to earn their Autodesk Fusion 360 Certified User certification. In year two (2), students earn their OSHA 10 certification and a possible NIMS credential - Machining Level I. In year three (3), students will earn their NIMS CNC Mill Operator certification. Students who successfully complete MCTS's Engineering pathway will also earn dual credits as part of our dual credit arrangement with Mercer County Community College. Students have additional articulated credit opportunities through the Rochester Institute of Technology (RIT).

Industry Valued Credentials & Certifications

Autodesk Fusion 360 Certified User

OSHA 10 Hour Certification

NIMS CNC Milling Operator

Dual Enrollment & Articulation Agreements

Mercer County Community College | RIT | Project Lead The Way

Admissions

bit.ly/mcts-admissions

Arthur R. Sypek Center
129 Bull Run Road
Pennington, NJ 08534
609.737.6379

www.mcts.edu · Magic Happens Here

STEM Academy

Engineering Pathway
Course Sequence

Core	Grade 9	Grade 10	Grade 11	Grade 12
English Language Arts	English I	English II	**English III**	**English IV**
Mathematics (*)	Algebra I or Geometry	Geometry or **Algebra II**	**Algebra II or AP Pre-Calculus**	*MAT151 Calculus I (4 Credits)*
Science	**Biology**	**Chemistry**	**Physics**	*PHY101 College Physics I (4 credits)*
Social Studies	**World History**	**US History I**	**US History II**	
Financial, Economic Business, and Entrepreneurial Business Literacy			Foundations in Personal Finance	*CSW100 College Success & Personal Wellness*
Health, Safety, and Physical Education	Physical Education & Health I	Physical Education, Health II and Drivers Education	Physical Education & Health III	Physical Education & Health IV
Visual and Performing Arts		Visual & Performing Arts Seminar		
World Languages	Spanish I/**Spanish II**	**Spanish II**		
21st Century Life & Careers, OR Career Technical Education **Interdisciplinary Studies, STEM Internship**	**Introduction to Engineering Design (Project Lead the Way**)	**Principles of Engineering (PLTW)**	**Computer Integrated Manufacturing (PLTW)**	*CIV103 Statics* *DRA218 3D Modeling & Printing*
	AP Computer Science Principles (Project Lead The Way)	**Machine Shop Techniques OR Civil Engineering & Architecture (PLTW)**	**Digital Electronics (PLTW)**	*AMT103 Blue Print Reading Basics* *AMT110 Machine Shop Techniques II*
Technology	Integrated throughout all courses			

- Students have the opportunity to earn up to sixty (60) credits at Mercer County Community College, per the requirements in the articulation agreement.
- **Bolded courses** provide opportunity for students to earn dual enrollment credit on MCTS campus. See specific course descriptions details by visitng, bit.ly/mcts_public_23 or scan the QR code.
- All post-secondary agreements are reviewed annually.
- All courses **may be subject to change***
- Board Approved 08/15/2023
- Created 09/2023

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