STEM Academy

Artificial Intelligence & Robotics Pathway - Arthur R. Sypek Center

The AI & Robotics program is a comprehensive, multi-disciplinary curriculum designed to equip students with essential computer science, artificial intelligence, and engineering skills. This program integrates dual enrolled AI & Robotics coursework with The College of New Jersey, Project Lead The Way (PLTW) coursework, Advanced Placement (AP) Computer Science Principles, Artificial Intelligence certification, and specialized career pathway options to provide students with a strong foundation in computational thinking, problem-solving, and real-world technology applications. This interdisciplinary program empowers students to think critically, innovate, and lead in the evolving fields of AI, robotics, engineering, and computer science, setting them on a path to success in STEM-related careers and higher education.

Students begin their journey with the Artificial Intelligence I course, where students have the opportunity to partake in the Certified Artificial Intelligence Prefect (CAIP™) certification program, designed for grades 9 and 10 that provides a strong foundation in AI, robotics, machine learning, deep learning, augmented and virtual reality, and Python programming. Developed by top industry experts, this certification equips students with the skills needed for future coursework, internships, and emerging careers in AI-related fields. Students concurrently enroll in Computer Science Principles, where they explore computational thinking, data analysis, algorithms, and programming, enhancing their problem-solving abilities through hands-on projects, digital portfolio creation, and an in-depth understanding of computing's impact on society.

Expanding their technical expertise, students delve into the ™CAIPa program designed to counter any demands of emerging AI job roles, internships, and part-time jobs. Students will experience topics such as AI, machine learning fundamentals, robotics, augmented reality, virtual reality, coding fundamentals, Python fundamentals, and more. Students develop hands-on skills that directly apply to industry and higher education using 3D modeling software, prototyping tools, programming software, and robotics hardware.

In year one (1), students will begin their journey through Artificial Intelligence Prefect certification. In year three (3), students earn their Artificial Intelligence Advanced Prefect certification. Students who successfully complete MCTS's AI & Robotics pathway will also earn dual credits as part of our dual credit arrangement with The College of New Jersey and Mercer County Community College. Students have additional articulated credit opportunities through the Rochester Institute of Technology.

Industry Valued Credentials & Certifications

- CCS: Generative AI Foundations
- Certified Artificial Intelligence Prefect (CAIP™)
- Certified Artificial Intelligence Prefect – Advanced (™CAIPa)

Dual Enrollment & Articulation Agreements

- Mercer County Community College
- The College of New Jersey (TCNJ)
- Rochester Institute of Technology

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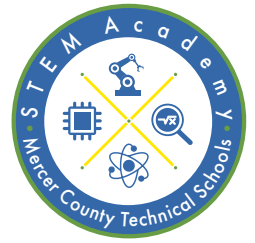Pennington, NJ 08534
609.737.6379

Admissions
mcts.edu/admissions

www.mcts.edu • Magic Happens Here

STEM Academy
Artificial Intelligence & Robotics Pathway
Course Sequence

Core	Grade 9	Grade 10	Grade 11	Grade 12
English Language Arts	English I	AP Seminar: English II	**English III**	**English IV**
Mathematics (*)	Algebra I or Geometry	Geometry or **Algebra II**	**Algebra II or AP Pre-Calculus**	MAT151 Calculus I / MAT201 Probability & Statistics for Science & Engineering
Science	**Biology**	**Chemistry**	**Physics**	PHY115 University Physics I / CHE101 General Chemistry
Social Studies	**World History**	**US History I**	**US History II**	
Financial, Economic Business, and Entrepreneurial Business Literacy			Foundations in Personal Finance	ECO112 Microeconomics
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**		
Career Technical Education (CTE)	**Artificial Intelligence I - Prefect**	**AI & Robotics Design & Development I**	**Artificial Intelligence II - Advanced Prefect**	**AI & Robotics Design & Development II**
Interdisciplinary Studies	**AP Computer Science Principles (Project Lead The Way)**	**Principles of Engineering (Project Lead The Way)**	**Computer Science A (Project Lead The Way)**	Aerospace Engineering (Project Lead the Way)
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, www.mcts.edu/admissions
- All post-secondary agreements are reviewed annually.
- All courses **may be subject to change**
- Board Approved 03/19/2025
- Created 09/12/2025

Admissions
mcts.edu/admissions