Institute for Science, Technology, Engineering & Mathematics (ISTEM)

WELCOME PROSPECTIVE ISTEM FAMILIES

ISTEM DISCOVERY NIGHT

- Wednesday, October 29, 2025
- 6:00 PM – 6:30 PM
  - ISTEM Presentation in Auditorium
- 6:30 PM – 7:30 PM
  - ISTEM Classroom Visits

Institute for Science, Technology, Engineering & Mathematics (ISTEM)

- North County Application Program
  - Zoned HS – Countryside, Dunedin, East Lake, Palm Harbor, Tarpon Springs
- Not listed above
  - Late Application period ONLY
  - Transportation is not provided
- Required to take one ISTEM class a year
  - Take multiple ISTEM majors
  - Switch ISTEM majors
- Maintain 2.3 unweighted GPA per semester
- May not earn any F's per semester

Institute for Science, Technology, Engineering & Mathematics (ISTEM)

- Pre-requisite for ISTEM courses is Digital Information Technology (DIT)
  - Can be taken in 8th grade or online over the summer on Pinellas Virtual School
    - Start their ISTEM major immediately in 9th grade
  - Otherwise, students take DIT in 9th grade and start their ISTEM major in 10th grade
- 8 majors for students
  - Biotechnology – Mr. Shackton, SHACKTONW@pcsb.org
  - Communications Technology – Mr. Pusateri, PUSATERIT@pcsb.org
  - Computer Systems & Information Technology – Mr. Smith, SMITHDAN@pcsb.org
  - Cybersecurity – Mr. Felt, FELTJ@pcsb.org
  - Digital Design – Mr. Coriarty, CORIARTYG@pcsb.org
  - Engineering – Mr. Hawkins, HAWKINSR@pcsb.org
  - Gaming & Simulation – Ms. Yaeger, YAEGERJ@pcsb.org
  - Web Application Development & Programming – Ms. Yaeger, YAEGERJ@pcsb.org

WHY ISTEM?

- Flexibility
- Emerging Technologies
- Real Life Experiences
- Field Trips
- Industry Certifications
- Merit Scholars Designation
- Strengthens College Application
- ISTEM SWAG

ISTEM Major Progression

ISTEM MAJOR	*STUDENTS MUST TAKE DIGITAL INFOMRATION TECHNOLOGY (DIT) BEFORE TAKING THEIR ISTEM STRAND COURSE*			
PROGRESSION	1ST	2ND	3RD	4TH
BIOTECHNOLOGY	BIOTECH 1	BIOTECH 2	BIOTECH 3	MANUF DIRECTED ST
	3027010S	3027020S	8736030S	9201000SB
COMMUNICATIONS TECHNOLOGY	COMM TECH 1	COMM TECH 2	COMM TECH 3	ADV TECH APPS
	8601010S	8601020S	8601030S	86010300C
COMPUTER SYSTEMS & INFORMATION TECHNOLOGY	CSIT FOUNDATIONS	CSIT SYS ESSENTIALS	CPT NETWORK TECH	CPT NETWORK SPEC
	9001210S	9001220S	CTS0083S	CTS0084S
CYBERSECURITY	CPT & NET SECURITY	CYBERSECURITY ESSEN	OPERATIONAL CYBERSEC	APPLD CYBERSEC APPS
	9001320S	9001330S	9001340S	9001390S
DIGITAL DESIGN	DIGITAL DESIGN 1	DIGITAL DESIGN 2	DIGITAL DESIGN 3	DIGITAL DESIGN 4
	8209510S	8209520S	8209530S	8209540S
ENGINEERING	BLDG TR & CDT 1	BLDG TR & CDT 2	BLDG TR & CDT 3	BLDG TR & CDT 4
	8722010S	8722020S	8722030S	8722040S
GAME & SIMULATION	GAME & SIM FOUND	GAME & SIM DESIGN	GAME & SIM PROGRAM	MULTI-USER GAME & SIM
	8208110S	8208120S	8208330S	8208340S
WEB APPLICATION DEVELOPMENT & PROGRAMMING	FOUND OF PROGRAMMING	PROCEDURAL PROGRAMMING	OBJECT-ORIENTED PROGRAMMING	JAVASCRIPT PROGRAM
	9007210S	9007220S	9007230S	9007520S

BIOTECHNOLOGY

- The nature of science
- Chemical processes in biotechnology, pH, solutions, molarity
- Cell propagation, growth and cultures for biotechnology
- Biochemistry, proteins, enzymes, plasmids, recombinants, blood borne pathogens
- Genetics and biotechnology, gene selection, transformation, analysis
- Structure and function of various organisms used as genetic models
- Interdependence of organisms, humans, and the environment,
- Genetic diversity and selection
- Connection between biotechnology, agricultural, food, and medicine and careers
- Bioethics
- Independent Research Project / Science Fair

COMMUNICATIONS TECHNOLOGY

- Demonstrate an understanding of the characteristics, scope, and influence of technology.
- Demonstrate an understanding of the elements of design and the principles of composition and how it correlates to the design process.
- Produce a visual representation of the project scope in forms of layouts, designs, blueprint and mock-ups/prototypes across various platforms that are associated with digital publishing.
- Express technical knowledge and understanding of major printing processes.
- Develop and apply word processing and document manipulation skills.
- Demonstrate basic proficiency and understanding of the differences between a moment in time, artwork and visual communications in the studies of photography.
- Demonstrate proficiency in using a software application for digital imaging.
- Demonstrate proficiency creating and manipulating digital images using software applications.
- Demonstrate advanced layout, mock-up, prototype, layout, project design associated with digital publishing.
- Demonstrate advanced proficiency creating and manipulating digital images using software applications.

COMPUTER SYSTEMS & INFORMATION TECHNOLOGY (CSIT)

- Demonstrate proficiency with personal computer hardware
- Apply troubleshooting, repairing and maintenance techniques
- Understand operating systems and software
- Identify and construct a basic network
- Analyze and react to various security threats and vulnerabilities
- Explain the basic physical security elements of a network
- Demonstrate proficiency with operational procedure

CYBERSECURITY

- This course introduces students to cybersecurity and provides them with essential computer and networking knowledge and skills, particularly those related to cybersecurity.
- This course provides students with insight into the many variations of vulnerabilities, attack mechanisms, intrusion detection systems, and some methods to mitigate cybersecurity risks, including certificate services and cryptographic systems.
- This course provides students with insight into the many ways in which computer systems can be secured, countermeasures implemented, and risk assessment performed.
- This is a project-based capstone course to provide Applied Cybersecurity students with the opportunity to apply their skills from both offensive and defensive perspectives. Students work in teams to research, plan, design, create, and configure a virtual network to prevent intrusion. Students will be expected to plan, document, perform, and report on penetration testing of a mock virtual network. This activity may take the form of a Capture the Flag (CTF) event.

DIGITAL DESIGN

- This course is designed to develop the entry-level skills required for careers in digital design. The content includes computer skills; digital publishing concepts and operations; layout, design, and measurement activities; digital imaging; communication, collaboration and decision-making activities; critical thinking and problem-solving.
- This course continues the development of entry-level skills required for careers in digital design. The content includes computer skills; digital publishing operations; layout, design, and measurement activities; digital imaging; communication, collaboration and decision-making activities; critical thinking and problem solving.
- This course continues the development of industry-standard skills required for careers in digital design. The content includes the use of software and equipment to perform digital publishing and digital imaging activities. Students continue to learn about communication, collaboration and decision-making activities, critical thinking and problem solving.
- This course is designed to develop advanced industry-standard skills required for careers in digital design. The content includes the use of software and equipment, including digital video cameras and video/audio editing software.

ENGINEERING

- The purpose of this program is to prepare students for employment or advanced training in the building construction industry.
- The purpose of this course is to provide students with competencies in safety practices; the use of hand and power tools; construction components, materials and hardware; construction industry occupations and employability skills.
- The purpose of this course is to provide students with competencies in rough and finish carpentry, masonry and painting.
- The purpose of this course is to develop student competencies in construction related math and science, the built environment and the green environment.

GAME & SIMULATION

- This course is designed to provide an introduction to game and simulation concepts and careers, the impact game and simulation has on society and industry, and basic game/simulation design concepts such as rule design, play mechanics, and media integration. This course compares and contrasts games and simulations, key development methodologies and tools, careers, and industry-related information. This course also covers strategies, processes, and methods for conceptualizing a game or simulation application; storyboarding techniques; and development tools.
- This course covers fundamental principles of designing a game or a simulation application, rules and strategies of play, conditional branching, design and development constraints, use of sound and animation, design tools, and implementation issues. The content includes market research, product design documentation, storyboarding, proposal development, and presentation of a project report. Emphasis is placed on the techniques needed to develop well-documented, structured game or simulation programs. Extensive use is made of evaluating and analyzing existing games or simulations.
- This course is focused on students acquiring the appropriate programming skills for rendering a game or simulation product, including program control, conditional branching, memory management, score-keeping, timed event strategies and methodologies, and implementation issues.
- This course is focused on students acquiring the appropriate programming skills for rendering a game or simulation product, including program control, conditional branching, score-keeping, timed event strategies and methodologies, and implementation issues specific to multi-user game/simulation products.

WEB APPLICATION DEVELOPMENT & PROGRAMMING

- This course introduces concepts, techniques, and processes associated with computer programming and software development.
- This course continues the study of computer programming concepts with a focus on the creation of software applications employing procedural programming techniques.
- This course continues the study of computer programming concepts specific to the Internet and Internet-based software applications.
- This course continues the study of computer programming concepts specific to client-side JavaScript.

Countryside High School **ISTEM (Introduction to Science, Technology, Engineering, Mathematics)**

ISTEM Majors: Biotechnology, Communications Technology, Computer Systems & Information Technology (CSIT), Cybersecurity, Digital Design, Engineering, Game and Simulation, Web Application Development & Programming

2026-2027 Application Information:

Discovery Night for the ISTEM program is Wednesday, October 29th, 2025, from 6:00pm to 7:30pm starting in our auditorium

Application for the ISTEM programs can be made through the parent focus account at https://focus.pcsb.org/

Program Application Period: January 6th – January 16th, 2026
Acceptance Period: February 10th – February 20th, 2026
Late Application Period: March 24th, 2026

Contact Mr. Bernstein, 727-725-7956 Ext. 2014, to schedule a student shadowing opportunity on the following Wednesdays:

October 8th, 15th, 22nd, 29th | November 5th, 12th, 19th | December 3rd, 10th | January 7th, 14th

Student Shadowing Day Information

Parent & Student Check-in	7:30-7:45
ISTEM Informational Session with Mr. Bernstein	7:45-8:15
ISTEM Classes Tour	8:15-9:00
Student Shadows Classes with a Current ISTEM Student	9:00-1:30
Dismissal	1:30

Mr. Bernstein, Assistant Principal and ISTEM Coordinator,
Countryside High School
727-725-7956 Ext. 2014
bernsteinb@pcsb.org

3000 State Road 580, Clearwater, FL 33761, (727) 725-7956

Countryside High School ISTEM

Countryside High School
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WHAT IS THE AP CAPSTONE DIPLOMA PROGRAM?

COUNTRYSIDE COUGARS

WHAT IS AP CAPSTONE?

AP Capstone program is an innovative program designed to foster critical thinking, research skills, and collaborative learning—essential competencies for success in college and beyond.

"AP Capstone has given me skills that helped me easily adjust to the college environment." --Destini, Temple University

AP Capstone consists of two courses:
AP Seminar and AP Research.

In **AP Seminar**, students explore complex topics, develop arguments, and present their findings, all while honing their analytical skills.

The **AP Research** course allows students to pursue an independent research project on a topic of their choice, guiding them through the research process and culminating in a formal presentation of their work.

HOW IT WORKS

If you earn scores of 3 or higher in AP Seminar and AP Research and on four additional AP Exams of your choice, you'll receive the AP Capstone Diploma™ . If you earn scores of 3 or higher in AP Seminar and AP Research, you'll receive the AP Seminar and Research Certificate™ .

Colleges and Universities recognize the AP Capstone Diploma as a valuable credential that signifies a student's readiness for the challenges of higher education.

AP Capstone Diploma™

- **AP SEMINAR (Year 1)**
  - Team Project & Presentation
  - Individual Research-Based Essay & Presentation
  - End-of-Course Exam
- **AP RESEARCH (Year 2)**
  - Academic Paper
  - Presentation & Oral Defense
- **4 AP COURSES & EXAMS**
  (Taken at any point throughout high school)

AP Seminar and Research Certificate™

STAND OUT IN COLLEGE ADMISSION

AP Capstone candidates stand out:

- On college applications and essays because they demonstrate critical thinking, communication, and research skills associated with AP Capstone.
- In college interviews because of the confidence, expertise, and passion they show when they talk about their unique academic projects.
- To college admission officers, who recognize that AP Capstone students know how to build evidence-based arguments, apply research methods, work in teams, deliver professional presentations, and complete long-term academic projects.

NEXT STEPS

We encourage you to discuss the AP Capstone program with your family, counselor, or administrator. Consider how it might align with your academic goals and personal interests. This program not only prepares you for the challenges of college, but also empowers you to explore your interests in depth and develop a passion for learning. This is a transformative experience that can prepare you for future challenges and opportunities.

Learn more about AP Capstone at collegeboard.org/apcapstone

WANT MORE INFORMATION?

- Brad Bernstein
  - Assistant Principal for ISTEM students
  - 727-725-7956 EXT 2014
  - bernsteinb@pcsb.org
- Carolina DeGarmo
  - School Counselor for ISTEM students
  - 727-725-7956 EXT 2061
  - degarmoca@pcsb.org
- Countryside HS ISTEM

ISTEM Classrooms

- **Biotechnology** – Mr. Shackton -- D 6 (D Wing outside last door on left)
- **Communications Technology** – Mr. Pusateri – F 1 (F wing mid way down on left)
- **Computer Systems & Information Technology** – Mr. Smith -- B 1 (B wing 1st classroom on left)
- **Cybersecurity** – Mr. Felt -- A 7 (A wing mid way down right)
- **Digital Design** – Mr. Coriarty -- B 3 (B wing 3rd door on left)
- **Engineering** – Mr. Hawkins – F 3 (F wing all the way down left)
- **Game & Simulation** – Ms. Yaeger -- A 1 (A wing 1st door on left)
- **Web Application Development & Programming** – Ms. Yaeger -- A 1 (A wing 1st door on left)
- **STEM Lab** – B 2 (B wing 2nd door on left)