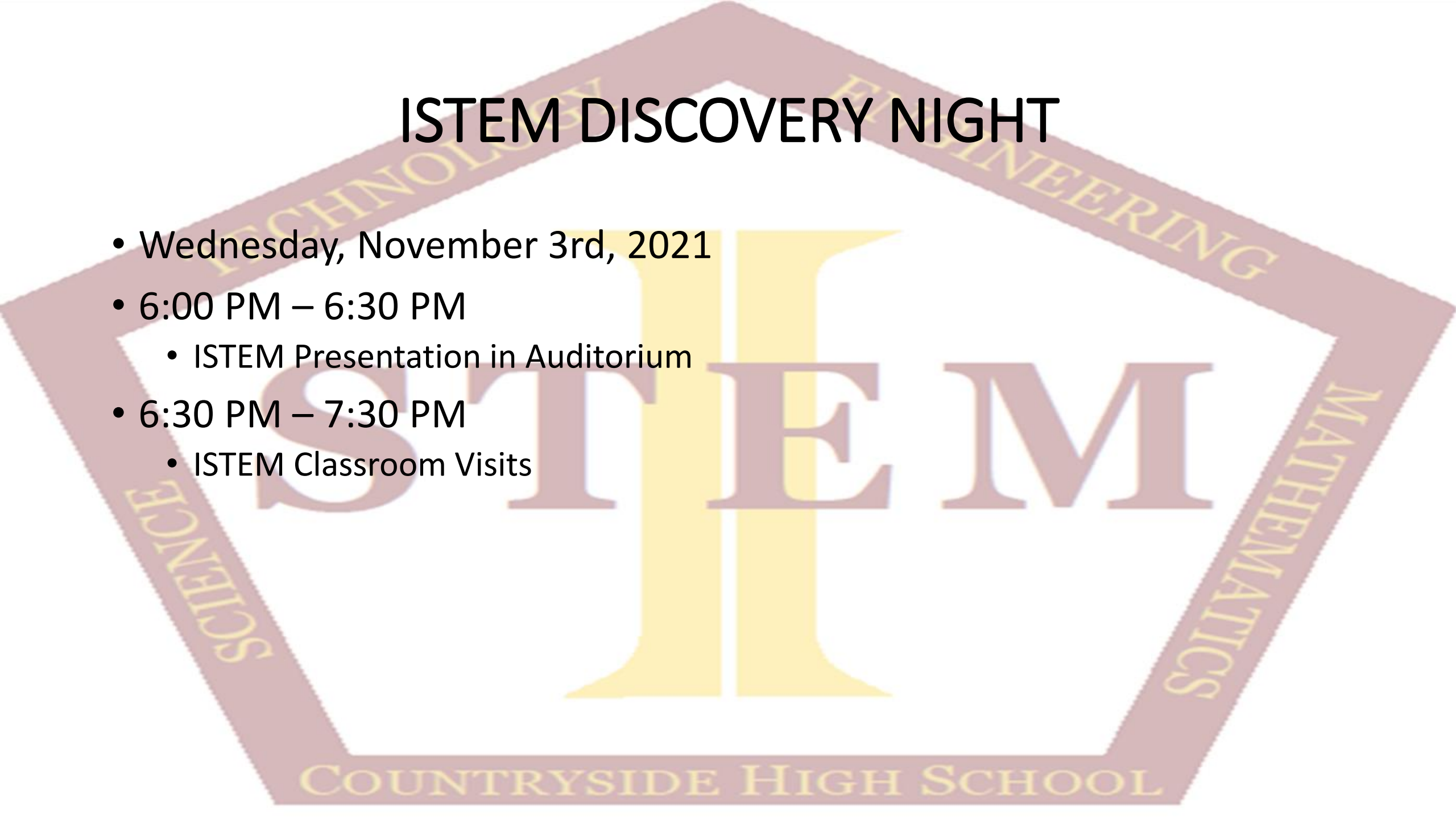


# ISTEM DISCOVERY NIGHT

- Wednesday, November 3rd, 2021
- 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 strands
  - Switch ISTEM strands
- Maintain 2.3 unweighted GPA per semester
- May not earn any F's per semester

COUNTRYSIDE HIGH SCHOOL

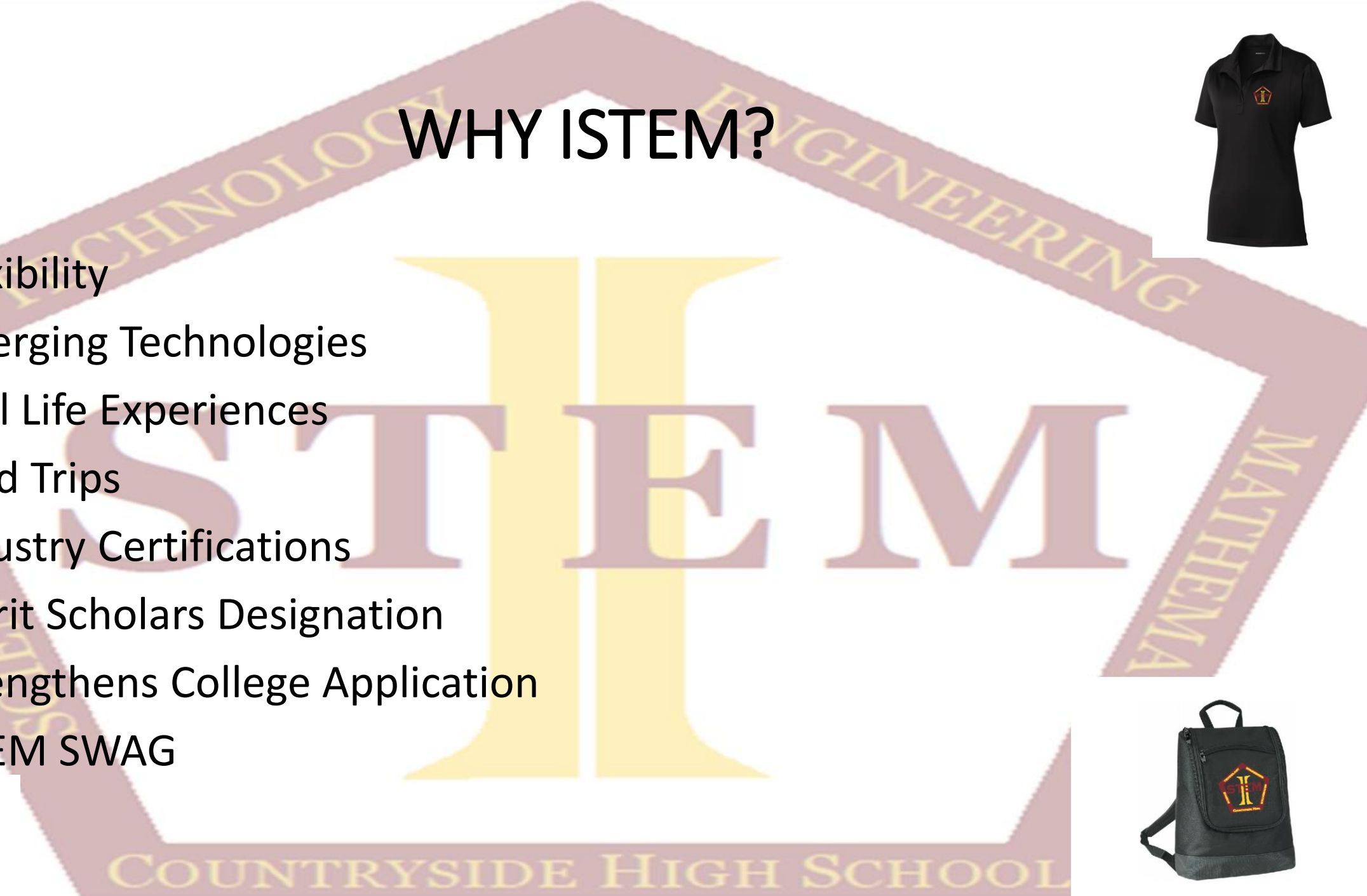
# Institute for Science, Technology, Engineering & Mathematics (ISTEM)

- Pre-requisite for ISTEM courses is Digital Information Technology (DIT)
  - Can be taken in 8<sup>th</sup> grade or online over the summer on Pinellas Virtual School
    - Start their ISTEM strand class immediately in 9<sup>th</sup> grade
  - Otherwise, students take DIT in 9<sup>th</sup> grade and start their ISTEM strand class in 10<sup>th</sup> grade
- 7 strands for students
  - Biotechnology – Mr. Shackton, [SHACKTONW@pcsb.org](mailto:SHACKTONW@pcsb.org)
  - Computer Systems & Information Technology – Mr. Smith, [SMITHDAN@pcsb.org](mailto:SMITHDAN@pcsb.org)
  - Cybersecurity – Mr. Felt, [FELTJ@pcsb.org](mailto:FELTJ@pcsb.org)
  - Digital Design – Mr. Coriarty, [CORIARTYG@pcsb.org](mailto:CORIARTYG@pcsb.org)
  - Engineering – TBD
  - Game & Simulation – Mr. Mills, [MILLSCHR@pcsb.org](mailto:MILLSCHR@pcsb.org)
  - Web Application Development & Programming – Ms. Yaeger, [YAEGERJ@pcsb.org](mailto:YAEGERJ@pcsb.org)

# WHY ISTEM?



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





# ISTEM Strand Progression

<b>ISTEM STRAND</b>	<i>*STUDENTS MUST TAKE DIGITAL INFORMATION TECHNOLOGY (DIT) BEFORE TAKING THEIR ISTEM STRAND COURSE*</i>				
<b>PROGRESSION</b>	<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	
<b>BIOTECHNOLOGY</b>	BIOTECH 1 3027010S	BIOTECH 2 3027020S	BIOTECH 3 8736030S	MANUF DIRECTED ST 9201000SB	
<b>COMPUTER SYSTEMS &amp; INFORMATION TECHNOLOGY (CSIT)</b>	CSIT FOUNDATIONS 9001210S	CSIT SYS ESSENTIALS 9001220S	CSIT NET SYS CONFIG / CPT NETWORK TECH 9001230S / CTS0083S	CSIT NET SYS DSG/ADM / CPT NETWORK SPEC 9001240S / CTS0084S	
<b>CYBERSECURITY</b>	CPT & NET SECURITY 9001320S	CYBERSECURITY ESSEN 9001330S	OPERATIONAL CYBERSEC 9001340S	APPLD CYBERSEC APPS 9001390S	
<b>DIGITAL DESIGN</b>	DIGITAL DESIGN 1 8209510S	DIGITAL DESIGN 2 8209520S	DIGITAL DESIGN 3 8209530S	DIGITAL DESIGN 4 8209540S	
<b>ENGINEERING</b>	APPLD ENG TECH I 8401110S	APPLD ENG TECH II 8401120S	APPLD ENG TECH III 8401130S	MANUF DIRECTED ST 9201000SE	
<b>GAME &amp; SIMULATION</b>	GAME & SIM FOUND 8208110S	GAME & SIM DESIGN 8208120S	GAME & SIM PROGRAM 8208330S	MULTI-USER GAME & SIM 8208340S	
<b>WEB APPLICATION DEVELOPMENT &amp; PROGRAMMING</b>	FOUND OF PROGRAMMING 9007210S	PROCEDURAL PROGRAMMING 9007220S	WEB PROGRAMMING 9007510S	JAVASCRIPT PROGRAM 9007520S	

# INDUSTRY CERTIFICATIONS

## Microsoft Office Specialist

- Word
- Excel
- PPT
- Access
- Outlook
- Word Expert
- Excel Expert
- OneNote

## CompTIA

- A+ Essentials
- A+ Practical Applications
- CompTIA Network+
- CompTIA Security+
- CompTIA IT Fundamentals+
- CompTIA CySA+
- CompTIA Server+

# INDUSTRY CERTIFICATIONS

## Microsoft Technology Associate

- MTA Networking
- MTA Security
- MTA Windows OS
- MTA Server Administration
- MTA Mobility and Devices
- MTA Database Admin Fund
- MTA Intro to Prog. in Java
- MTA Intro to Prog. In JavaScript
- MTA Intro to Prog. Block Based
- MTA Intro to Prog. Using Python
- MTA Intro to Prog. using HTML and CSS
- MTA HTML5 Application Developer
- MTA Software Development Fund

## Adobe

- Adobe Photoshop
- Adobe Dreamweaver
- Adobe Illustrator
- Adobe InDesign
- Adobe Premiere Pro
- Adobe Flash
- Adobe Animate CC
- CIW JavaScript Specialist

# INDUSTRY CERTIFICATIONS

## Miscellaneous

- EC-Council Ethical Hacking Associate
- Unity Certified User: Programmer
- Small UAS Safety Certification
- Visual Line of Sight System Operator (VSO) Ground
- Biotechnician Assistant Credentialing Exam (BACE)
- Certified LabView Associate Developer (CLAD)



# 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

# 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

- This course helps students understand the field of engineering/engineering technology and prepares them for postsecondary engineering programs by developing a more in-depth mastery of the associated mathematics, science, and technology knowledge and skills. The course also includes essential concepts of technology and design, as well as concerns about the social and political implications of technological change.
- This course provides students with opportunities to further their mastery of engineering-related math and science principles to design solutions to real world problems. The course also includes a more in-depth look into the relationship between technology and design.
- This course provides opportunities for students to apply their acquired knowledge and skills in engineering scenarios. The course features multiple options for providing context-based projects oriented to specific fields of engineering. This feature enables instruction in complex projects involving multi-faceted project teams by providing instruction oriented to four key engineering disciplines: mechanical, electrical, civil, and environmental.






# GAME & SIMULATION

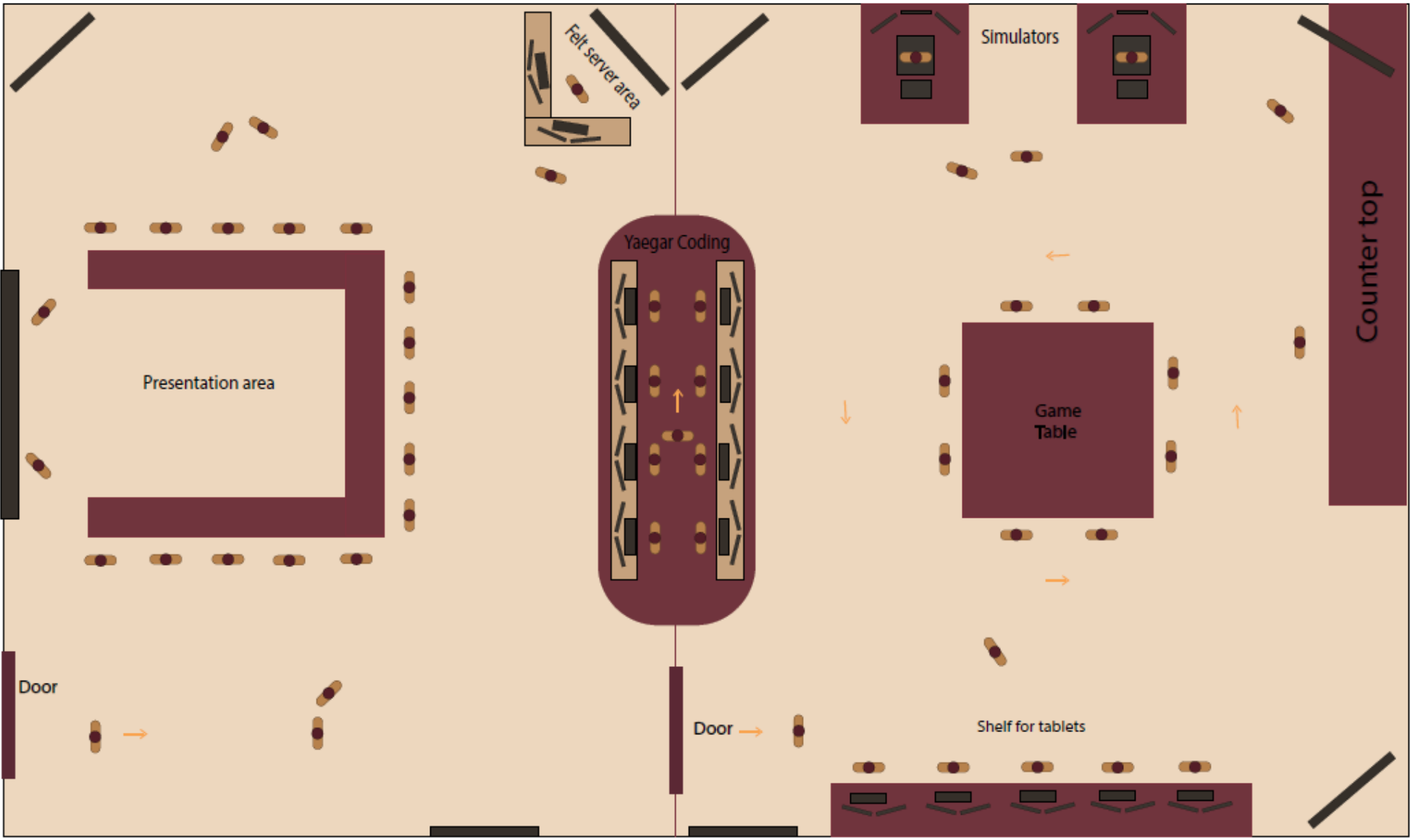
- This course is designed to provide an introduction to game and simulation concepts and careers, the impact game and simulation has on society and industry, and basic game/simulation design concepts such as rule design, play mechanics, and media integration. This course compares and contrasts games 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.

# ISTEM Lab


- Key:
- 1 person: 
  - 65"TV: 
  - Computers: 
  - Door: 
  - Arrows for direction: 



B wing

Felt room





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



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

2022-2023 Application Information:

*Discovery Night for the ISTEM program is Wednesday, November 3rd, 2021, from 6:00pm to 7:30pm starting in our auditorium*

Application for the ISTEM programs can be made through the Online Reservation System at <https://reservation.pcsb.org/>

Program Application Period: January 5<sup>th</sup> – January 14<sup>th</sup>, 2022

Acceptance Period: February 7<sup>th</sup> – February 18<sup>th</sup>, 2022

Late Application Period: March 21<sup>st</sup>, 2022

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

November 10<sup>th</sup>, 17<sup>th</sup>

December 1<sup>st</sup>, 8<sup>th</sup>

January 5<sup>th</sup>, 12<sup>th</sup>

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](mailto:bernsteinb@pcsb.org)

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

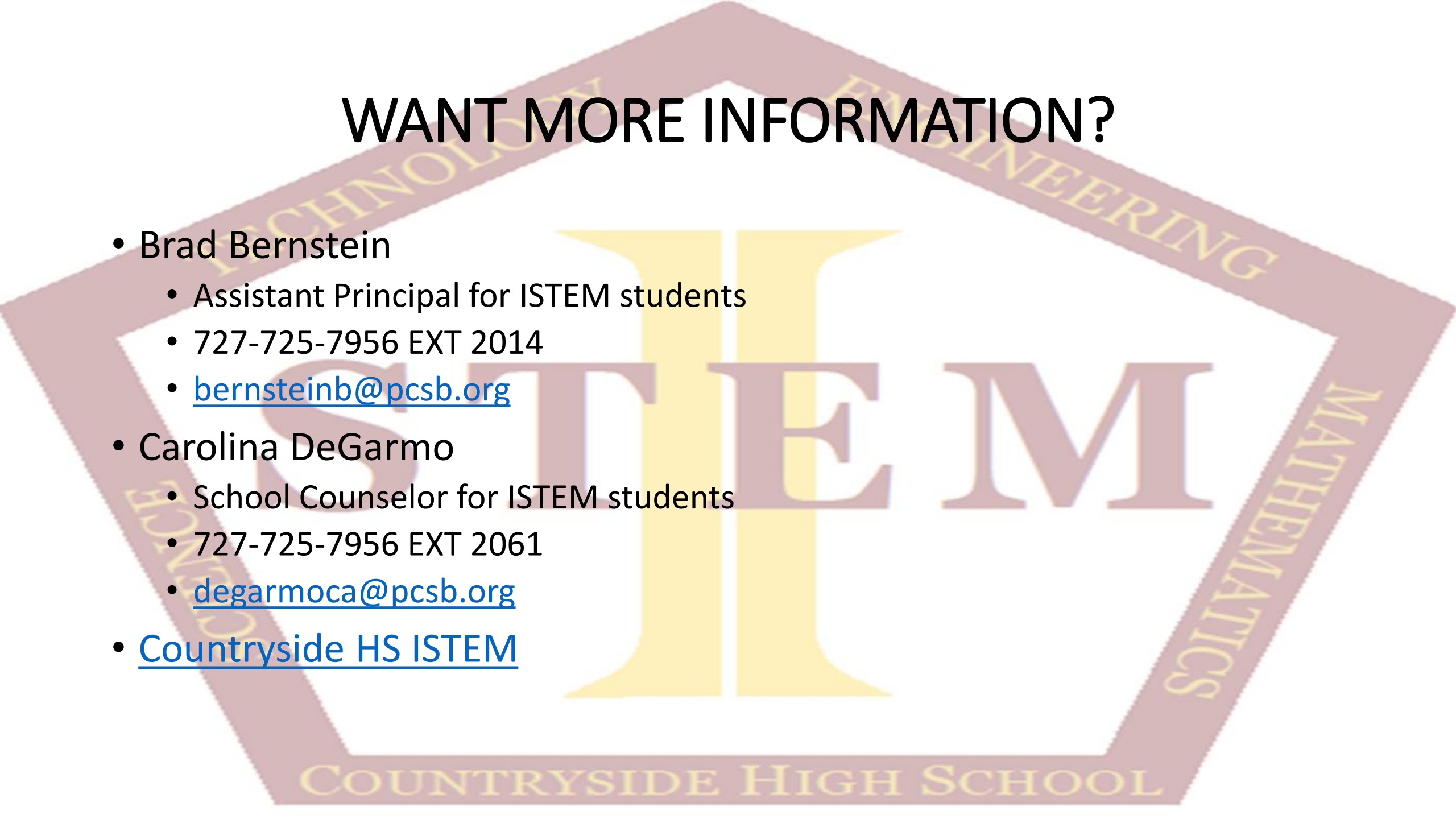
[Countryside High School](#)  
[Countryside High School ISTEM](#)

COUNTRYSIDE HIGH SCHOOL



# WANT MORE INFORMATION?

- Brad Bernstein
  - Assistant Principal for ISTEM students
  - 727-725-7956 EXT 2014
  - [bernsteinb@pcsb.org](mailto:bernsteinb@pcsb.org)
- Carolina DeGarmo
  - School Counselor for ISTEM students
  - 727-725-7956 EXT 2061
  - [degarmoca@pcsb.org](mailto:degarmoca@pcsb.org)
- [Countryside HS ISTEM](#)



# ISTEM Classrooms

- Biotechnology – Mr. Shackton -- D 6 (D Wing outside last door on left)
- Computer Systems & Information Technology – Mr. Smith -- B 1 (B wing 1<sup>st</sup> classroom on left)
- Cybersecurity – Mr. Felt -- A 7 (A wing mid way down right)
- Digital Design – Mr. Coriarty -- B 3 (B wing 3<sup>rd</sup> door on left)
- Game & Simulation – Mr. Mills -- A 6 (A wing all the way down right)
- Web Application Development & Programming – Ms. Yaeger -- A 1 (A wing 1<sup>st</sup> door on left)