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

WELCOME PROSPECTIVE ISTEM FAMILIES

ISTEM DISCOVERY NIGHT

- Wednesday, October 26, 2022
- 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

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 strand class immediately in 9th grade
  - Otherwise, students take DIT in 9th grade and start their ISTEM strand class in 10th grade
- 7 strands for students
  - Biotechnology – Mr. Shackton, SHACKTONW@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
  - Game & Simulation – Mr. Mills, MILLSCHR@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 Strand Progression

ISTEM STRAND	**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
COMPUTER SYSTEMS & INFORMATION TECHNOLOGY (CSIT)	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	CARPENTRY/MASONRY TECH
	8722010S	8722020S	8722030S	BCV0081
GAME & SIMULATION	GAME & SIM FOUND	GAME & SIM DESIGN	GAME & SIM PROGRAM	MULTI-USER GAME & SIM
	8208110S	8208120S	8208330S	8208340S
WEB APPLICATION	FOUND OF	PROCEDURAL	WEB PROGRAMMING	JAVASCRIPT PROGRAM

INDUSTRY CERTIFICATIONS

Course	CAPE Industry Certification	CAPE Identifier
Digital Information Technology	Entrepreneurship & Small Business	INTUT002
Biotech 1		
Biotech 2	Biotechnician Assistant	CERHB001
Biotech 3	Biotechnician Assistant*	CERHB001
Manufacturing Directed Study (Biotech 4)		
*if not already earned in a previous class		

INDUSTRY CERTIFICATIONS

Course	CAPE Industry Certification	CAPE Identifier
Digital Information Technology	Entrepreneurship & Small Business	INTUT002
CSIT Foundations	CompTIA IT Fundamentals+	COMPT018
CSIT Essentials	Information Technology Specialist (ITS) – Networking	CERTI007
CPT Network Tech	CompTIA A+	COMPT001
CPT Network Specialist	CompTIA Network+	COMPT006
	CompTIA Security+	COMPT008

INDUSTRY CERTIFICATIONS

Course	CAPE Industry Certification	CAPE Identifier
Digital Information Technology	Entrepreneurship & Small Business	INTUT002
Cpt & Net Security	Information Technology Specialist (ITS) – Networking	CERTI007
	CompTIA Network+	COMPT006
Cybersecurity Essentials	Information Technology Specialist (ITS) – Network Security	CERTI006
	CompTIA Network+*	COMPT006
Operational Cybersecurity	CompTIA Security+	COMPT008
Applied Cybersecurity Apps	CompTIA Network+*	COMPT006
	CompTIA Security+*	COMPT008
	CompTIA Cybersecurity Analyst (CySA+)	COMPT016
*if not already earned in a previous class		

INDUSTRY CERTIFICATIONS

Course	CAPE Industry Certification	CAPE Identifier
Digital Information Technology	Entrepreneurship & Small Business	INTUT002
Digital Design 1	Adobe Photoshop	ADOBE024
Digital Design 2	Adobe InDesign	ADOBE024
Digital Design 3	Adobe Premiere Pro	ADOBE023
	Adobe After Effects	ADOBE023
Digital Design 4		

INDUSTRY CERTIFICATIONS

Course	CAPE Industry Certification	CAPE Identifier
Digital Information Technology	Entrepreneurship & Small Business	INTUT002
Game & Sim Foundations		
Game & Sim Design	Information Technology Specialist (ITS) – Software Development	CERTI004
	Unity Certified User: Programmer	UNITY002
Game & Sim Programming	Unity Certified User: VR Developer	UNITY004
	Unity Certified User: Artist	UNITY003
Game & Sim Multi-User Programming	Information Technology Specialist (ITS) – Java	CERTI013
	Oracle Certified Associate (OCA): Java Programmer	ORACL004

INDUSTRY CERTIFICATIONS

Course	CAPE Industry Certification	CAPE Identifier
Digital Information Technology	Entrepreneurship & Small Business	INTUT002
Foundations of Programming	Information Technology Specialist (ITS) - JavaScript	CERTI010
Procedural Programming	Information Technology Specialist (ITS) - Python	CERTI012
Web Programming	Information Technology Specialist (ITS) - HTML and CSS	CERTI011
.NET App Development Applied	Information Technology Specialist (ITS) - HTML5 Application Development	CERTI008

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

- 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.

ISTEM Lab

Key:

1 person:

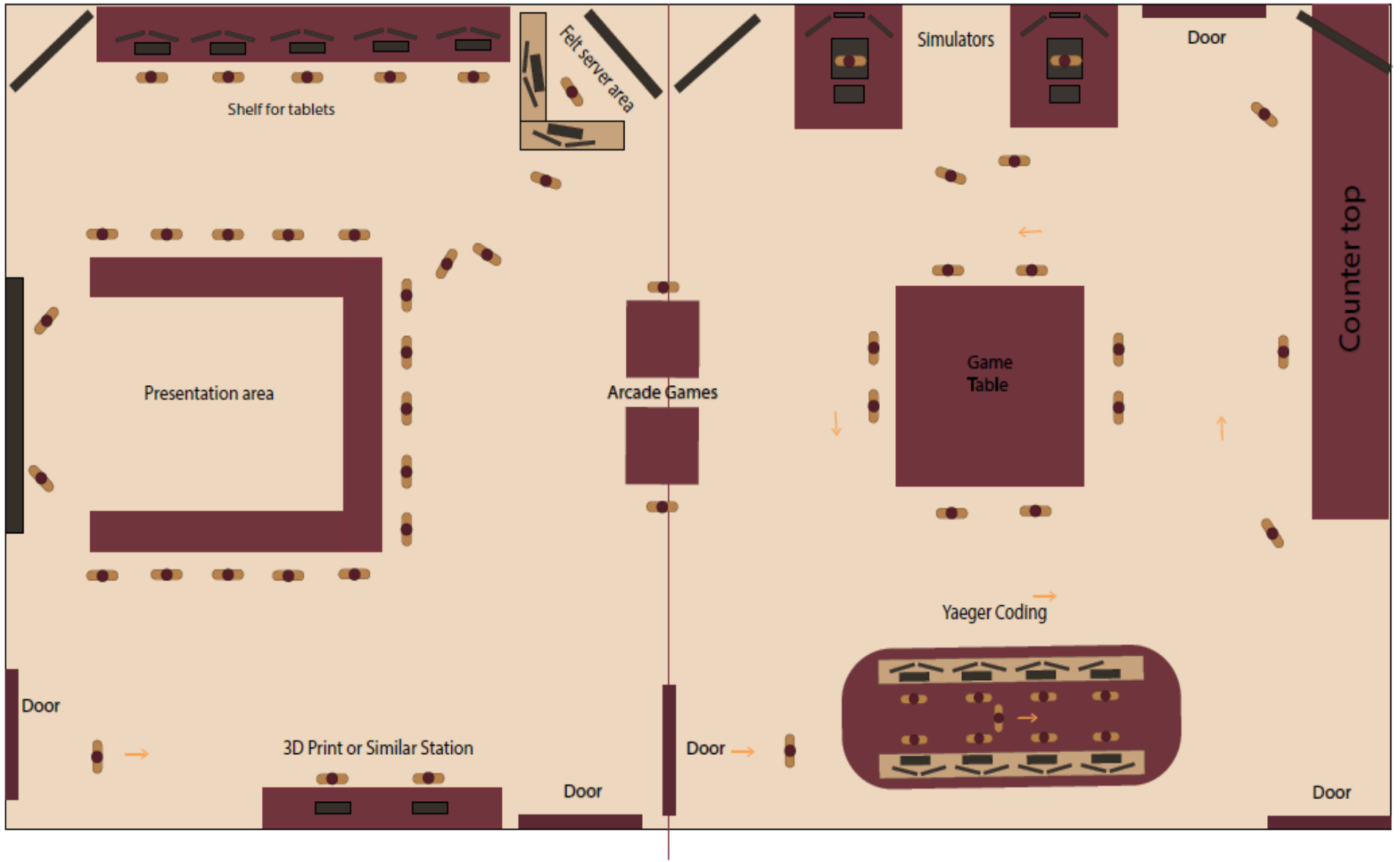
65"TV:

Computers:

Door:

Arrows for direction:

Smith Room



B wing

A wing

Coriarty Room

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

2023-2024 Application Information:

Discovery Night for the ISTEM program is Wednesday, October 26th, 2022, 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 10th – January 20th, 2023
Acceptance Period: February 8th – February 17th, 2023
Late Application Period: March 20th, 2023

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

November 2nd, 9th, 16th, 30th | December 7th, 14th | January 11th

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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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)
- **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** – Mr. Mills -- A 6 (A wing all the way down right)
- **Web Application Development & Programming** – Ms. Yaeger -- A 1 (A wing 1st door on left)