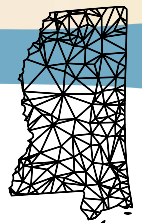




GRADES 9-12



902147 WEB AND PROGRAMMING CONCEPTS (WEB DEVELOPMENT FOUNDATIONS)

PROPOSAL BY PITSCO EDUCATION #100196-1

8/27/24



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RONNIE THOMAS

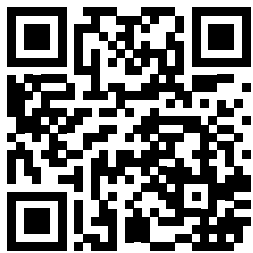
SOUTHEAST EDUCATION ADVISOR

800-835-0686, ext. 4560

rthomas@pitsco.com

20 Years of Experience

BOOK A MEETING WITH RONNIE



LETTER OF INTEREST

Thank you for the opportunity to present a custom program we have designed that aligns directly to the goals of Mississippi Department of Education.

At Pitsco Education, we aim to provide hands-on learning opportunities for learners and support for educators in their endeavors to create future problem solvers, offer career exploration opportunities, and create a foundation for future success.

The program we have outlined is hands on, includes engineering design process challenges, and exposes students to a number of future careers.

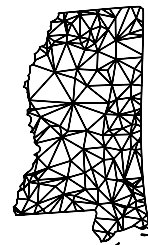
However, if this design doesn't hit the mark, we have a team of program designers who can make the necessary updates and select the standards-based curriculum, hands-on projects, and professional development from our comprehensive range of STEM and CTE resources to create a tailored, turnkey solution that best addresses the needs of Mississippi students and teachers.

Access to review the curriculum will be sent from Mastery Coding to Elizabeth Simmons, BA, MLIS, EdS, Instructional Materials and Library Services Director (Office of Elementary Education and Reading, esimmons@mdek12.org).

If you have any questions regarding the information enclosed or if you would like to request further information, please do not hesitate to contact me at any time. Thank you for your time and consideration.

Sincerely,

Ronnie Thomas
Southeast Education Advisor



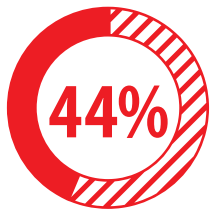


STEM REDEFINED

STEM is so much more than science, technology, engineering, and math. STEM is aha moments. It's failure. It's collaborating with peers. It's social-emotional learning. It's making. It's robotics. It's coding. It's career exposure. It's flexible learning environments. It's development and practice of essential life skills.

And it's preparing students for a future we can't yet describe.

3  Currently serving
MILLION+
students annually



More than
44% of our
customers
have been
customers for
20 years



WHO WE ARE

Pitsco Education is a leader in future-ready learning fundamentally rooted in STEM. Our competency-based and collaborative hands-on solutions effectively integrate core disciplines while helping learners master the transferable collaboration, critical-thinking, and problem-solving skills that will last a lifetime and translate to any college or career path.

For more than 50 years, Pitsco Education has offered a comprehensive range of scalable hands-on resources and curriculum. We help educators create learning environments that address all learning styles and help all students find success while solving problems, being creative, articulating ideas, and thinking with their hands.

OUR GOAL

To make it easy for schools to bring these materials to the classroom to create lifelong learners, successful professionals, and engaged citizens.

We promise to remove barriers, to bring cutting-edge education technology into the classroom, and to help teachers find new, relevant ways to do what they do best.



**LIFELONG
LEARNERS**



**SUCCESSFUL
PROFESSIONALS**



**ENGAGED
CITIZENS**


1,000+
different careers
to explore within
our curriculum

We provide
curriculum
professional
development for
an average of
800
teachers annually



More than
50
Years!
serving
educators



OVERVIEW

The terms and circumstances of human existence are expected to change exponentially during our children's lives. A 21st-century, STEM-proficient workforce will be at the center of this change – causing it, shaping it, responding to it – because the primary driver of our future lies largely in the advances in science and engineering from those equipped with a collaborative, problem-identifying/problem-solving mindset.

While most career and technical education programs focus on high school students, Pitsco Education's STEM programs build a pipeline of STEM learners, beginning early to hone students' 21st-century skills and establish a solid foundation for future careers. Along the way, students acquire the requisite language and skills sets to jump directly into more immersive experiences such as internships that continue the progression of learning, helping students achieve success at their chosen next stop – college or career.



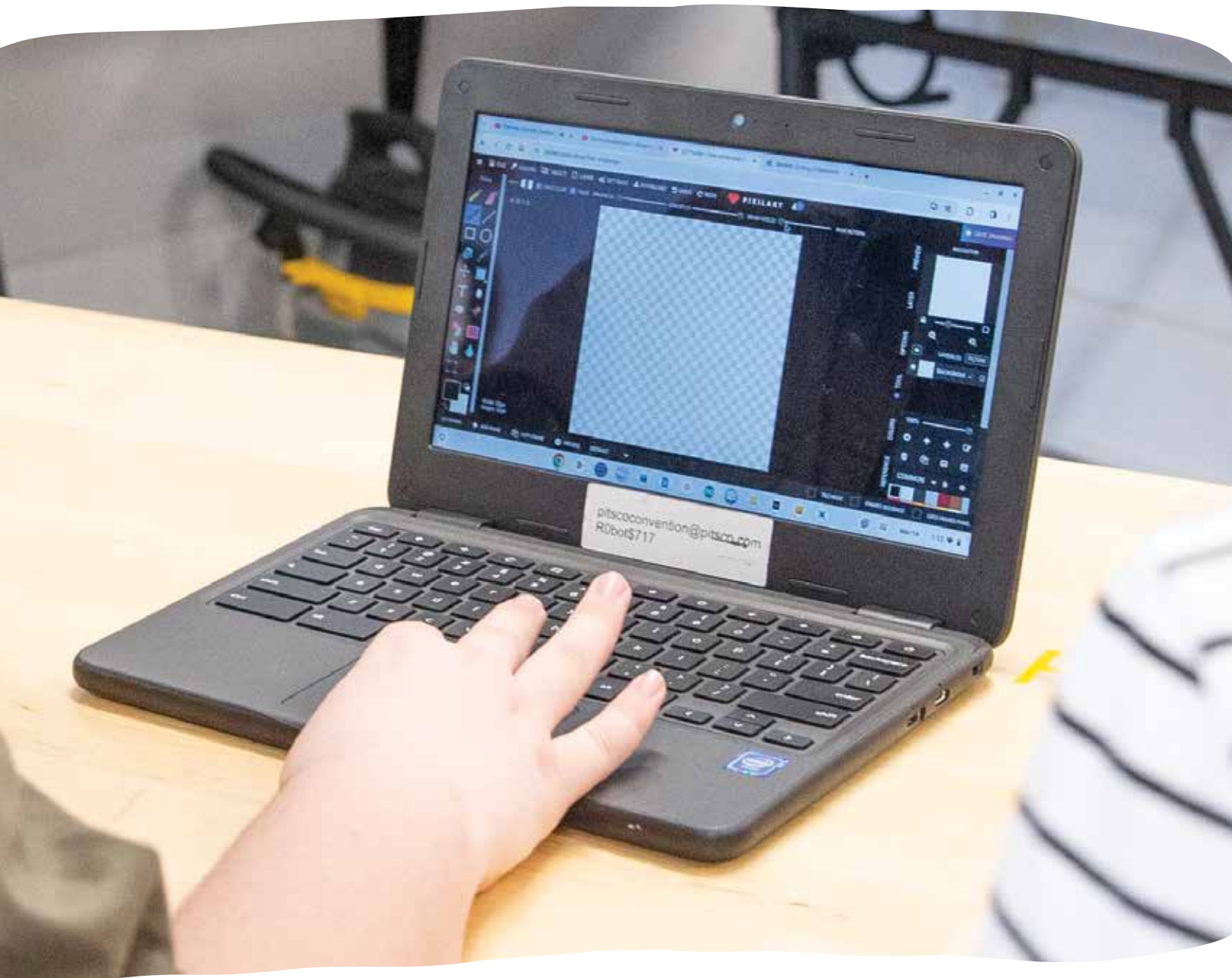
A PROGRESSIVE CTE EXPERIENCE

Pitsco Education's proprietary and partner curricular programs put a piece of the world in students' hands and ask, "How does this apply to your life?" Hands-on exploration and project-based learning extend across the curriculum and connect the classroom to careers. This has been a guiding ideal in Pitsco's philosophy since the company's founding more than 50 years ago.

Pitsco Education's solutions prepare students for a lifetime of critical thinking, collaboration, and creative problem-solving in the context of rigorous and future-relevant learning. Preparing the next generation for the future requires meeting young people where they are. It gives students a platform and structure to gain and practice the knowledge and skills required in a 21st-century workplace. It's equipping teachers with the understanding and mindset required to manage this type of future-relevant learning environment that produces independent critical thinkers.

Equally as important as the technical skills students will need are the soft skills necessary to accept and engage with changes caused by the fast-paced growth of technology. According to the Organisation for Economic Cooperation and Development (OECD), to succeed in the future workforce, “students will need to develop curiosity, imagination, resilience, and self-regulation; they will need to respect and appreciate the ideas, perspectives, and values of others; and they will need to cope with failure and rejection, and to move forward in the face of adversity” (*The Future of Education and Skills: Education 2030*).

Pitsco Education brings all of this together through experiential learning and helps prepare students with a skill set that can help them be successful no matter their career choice. The products and programs outlined in this document were carefully chosen to increase Computer Science literacy and workforce development skills for Mississippi students.



YOUR CUSTOM DESIGN

Curriculum for Mississippi Department of Education creates learning opportunities that build the collaboration and problem-solving skills needed for a lifetime of learning and working, enables students to make connections among the four areas of STEM learning, and immerses students in the technology of the future. The following chart provides a listing of the titles and products included as part of your custom design along with the recommended grade levels for each.

MISSISSIPPI DEPARTMENT OF EDUCATION

GRADES 9-12
CODING
902147 Web and Programming Concepts (Web Development Foundations)

WEB AND PROGRAMMING CONCEPTS

This course introduces students to the essential concepts of web design and development. It covers key topics such as user interface design, creating responsive layouts, and ensuring accessibility. Students begin by learning design principles and how to apply them to projects, then move on to coding with HTML and CSS to build visually appealing web pages. The course culminates with JavaScript, where students learn to add interactivity to their web pages. By the end of the course, students will understand the life cycle of a web project, industry-standard design terms, and techniques, and will be able to create responsive, accessible web pages using HTML, CSS, and JavaScript.



CODING

ENVIRONMENT: Computer Science solutions require a collaboration-ready environment that accommodates students working in pairs and individually. This is the responsibility of the district.

FOUNDATIONS LICENSE

902147 WEB AND PROGRAMMING CONCEPTS (WEB DEVELOPMENT FOUNDATIONS)

Each course in our Foundations line is designed with accessibility as a core principle. Students can complete the entirety of these courses on the web.

FEATURES

- Chromebook: Chrome OS 100.0 or later
Windows: 7, 8, 8.1, 10 or later
- Mac: OS X El Capitan 10.11 or later
- Linux: 64-bit Ubuntu 18.04+, Debian 10+, openSUSE 15.2+, or Fedora Linux 32+

SOFTWARE INSTALLED

- Google Chrome

HARDWARE

- RAM: 4GB or more
- CPU: Pentium 5 or later

• PERIPHERALS

- 13" or bigger display
- Full keyboard
- Three-button mouse with scroll wheel
- Headphone jack and headphones

SITES TO WHITE LIST

- masterycoding.com
- player.vimeo.com (optional)
- techterms.com
- developer.mozilla.org

For Web Dev Foundations

- codepen.io*

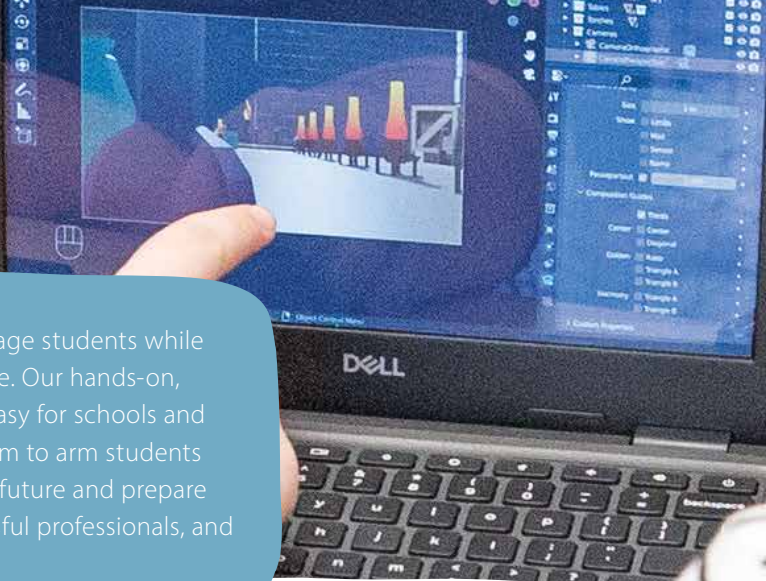
For Game Dev Foundations

- pixilart.com*
- vscode.dev

*Students are recommended but not required to create accounts on CodePen and Pixilart to save their works and have an online portfolio.

CODING

Coding represents an opportunity to engage students while preparing them for an indescribable future. Our hands-on, curriculum-supported solutions make it easy for schools and teachers to bring coding into the classroom to arm students with the skills that will be relevant for the future and prepare them to become lifelong learners, successful professionals, and engaged citizens.



WEB AND PROGRAMMING CONCEPTS

(WEB DEVELOPMENT FOUNDATIONS BY MASTERY CODING™)

GENERAL OVERVIEW

This course introduces students to the essential concepts of web design and development. It covers key topics such as user interface design, creating responsive layouts, and ensuring accessibility. Students begin by learning design principles and how to apply them to projects, then move on to coding with HTML and CSS to build visually appealing web pages. The course culminates with JavaScript, where students learn to add interactivity to their web pages. By the end of the course, students will understand the life cycle of a web project, industry-standard design terms, and techniques, and will be able to create responsive, accessible web pages using HTML, CSS, and JavaScript.



COURSE OBJECTIVES

Upon completion of this course, student will be able to:

- Illustrate the life cycle of a web project from idea to development.
- Define industry standard design terms and principles.
- Illustrate design techniques and apply them to their own project ideas.
- Utilize HTML to create the structure and define the content of their web pages.
- Utilize CSS to create visually appealing and flexible web pages.
- Utilize JavaScript to add interactivity to otherwise static web pages.
- Articulate the importance of designing and developing for accessibility and collaboration.
- Create responsive layouts for desktop and mobile screens.

902147 WEB AND PROGRAMMING CONCEPTS COURSE SCOPE AND SEQUENCE

COURSE SCOPE AND SEQUENCE

UNIT 1: DESIGNING FOR THE INTERNET

Students learn the fundamentals of visual design, how to create layouts for the web using design software, and the best practices to make designs that a variety of people can enjoy.

LEARNING OBJECTIVES

By the end of this Unit, students will be able to:

- Define industry terms and careers associated with web design.
- Compare and contrast user interface and user experience design.
- Utilize an interface design software to produce a project.

CHAPTERS

- **Chapter 1: Welcome to Web Foundations (Duration: 1 hr 15 min)**
 - Course overview and explanation of the course tool kit
 - Overview of web design terminology, workflows, and associated careers
- **Chapter 2: Introduction to UX & UI (Duration: 2 hr 45 min)**
 - Define related and differentiated concepts for user interface and experience design
 - Recognize common user interface software tools and shortcuts
- **Chapter 3: Design Workflow & Principles (Duration: 2 hr)**
 - Define scope and how to conduct research for a new project idea
 - Illustrate the importance of understanding the project's target audience
- **Chapter 4: Designing for Responsive Layouts (Duration: 2 hr 15 min)**
 - Identify the grid types used to optimally display different types of content
 - Recognize terms related to a responsive, mobile-first design approach
- **Chapter 5: Unit Project | Mood Board to Mock-up (Duration: 2 hr 30 min)**
 - Students will create a layout plan, wireframe, and high fidelity design mock-up

COURSE SCOPE AND SEQUENCE

UNIT 2: WEB DEVELOPMENT BASICS

Students begin the transition from web designer to web developer as we discuss the workings of the Internet, the web browser, and the foundational skills that will allow us to turn our designs to websites.

LEARNING OBJECTIVES

By the end of this Unit, students will be able to:

- Create the structure and content of a web page using HTML.
- Apply a variety of visual styling to a web page using CSS.

CHAPTERS

- **Chapter 1: The Internet & HTML (Duration: 2 hr 45 min)**
 - Overview of the Internet, the history of its development, and its regulations
 - Introduction to HTML and its history, syntax, and the basics of formatting text
- **Chapter 2: Styling with CSS (Duration: 2 hr 30 min)**
 - Define CSS, its use in regards to web development, and its syntax
 - Draw similarities between user interface design concepts and CSS properties
 - Define character sets and identify the generic font families
- **Chapter 3: Designing as a Developer (Duration: 2 hr 30 min)**
 - Explain the usage of the color wheel and defining characteristics of color
 - Apply color in code using keywords, hex, RGB, and HSL values
 - Show how to utilize generic fonts and those hosted by the Google Font Library
- **Chapter 4: Arranging Content (Duration: 2 hr 30 min)**
 - Illustrate how to properly structure content in HTML using semantic markup
 - Use various CSS properties to position elements on the web page
- **Chapter 5: Links, Lists & Tables (Duration: 1 hr 30 min)**
 - Overview of links and their ability to connect external and internal content
 - Define new methods to structure HTML content using lists and tables
- **Chapter 6: Media Elements (Duration: 1 hr 30 min)**
 - Define the unique media types that can be incorporated into web pages, such as images, video, and iframes
 - Identify the importance of offering multiple sources when adding media
 - Illustrate how to incorporate media content from third party sources such as YouTube
- **Chapter 7: Unit Project | Green Team Website (Duration: 3 hr)**
 - Utilizing a mock-up, students will create a static web page using HTML and CSS

COURSE SCOPE AND SEQUENCE

UNIT 3: JAVASCRIPT BASICS & HTML FORMS

Students develop an understanding of the programming language used for this course, JavaScript, which is used in almost every modern website. So, in this Unit, we start with the basics such as using data types for different purposes, writing expressions, and programming behavior with functions.

LEARNING OBJECTIVES

By the end of this Unit, students will be able to:

- Write scripts using programming fundamentals.
- Apply conditional logic and randomness as needed.
- Create JavaScript functions to interact with HTML and CSS.

CHAPTERS

- **Chapter 1: Getting Started with Programming (Duration: 2 hr)**
 - Overview of the basics and the history of the JavaScript programming language
 - Define commands in the web browser console
 - Define engineering and recognize different engineering disciplines
- **Chapter 2: Data Types & Expressions (Duration: 2 hr)**
 - Recall different data types and arithmetic expressions
 - Illustrate the order of operations and variable declarations
 - Differentiate and utilize properties, methods, and comments
- **Chapter 3: Comparison Operators & Control Flow (Duration: 2 hr 15 min)**
 - Compare and utilize different types of comparison operators
 - Construct conditional statements using logical operators
 - Illustrate randomness using the built-in Math object
- **Chapter 4: Arrays & Loops (Duration: 1 hr 30 min)**
 - Define arrays and utilize zero-based numbering to access array elements
 - Utilize properties and methods to interact with arrays
 - Construct loops utilizing various assignment operators
- **Chapter 5: Functions & Event-Driven Development (Duration: 2 hr 30 min)**
 - Recognize the difference between variables and functions
 - Define functions using parameters, arguments, and return values
 - Use the Document Object Model (DOM) to interact with HTML
- **Chapter 6: Designing & Developing Forms (Duration: 2 hr)**
 - Define the construction of HTML forms and form elements
 - Illustrate the basics of web servers and hosting
 - Recall the fundamentals of form submission and styling
- **Chapter 7: Unit Project | Color Picker Application (Duration: 2 hr 30 min)**
 - Utilizing a mock-up, students will break down a design into components
 - Using HTML, CSS, and JavaScript, students will then build a color picker application

COURSE SCOPE AND SEQUENCE

UNIT 4: DESIGNING & DEVELOPING RESPONSIVE WEBSITES

Students conclude by utilizing more advanced concepts to take their CSS and JavaScript knowledge to the next level as we build a variety of interactive projects.

LEARNING OBJECTIVES

By the end of this Unit, students will be able to:

- Understand fundamental design principles and the components of a website.
- Define the importance of accessibility in design and development.
- Apply a variety of responsive styling and development techniques.

CHAPTERS

- **Chapter 1: Designing for the Web (Duration: 2 hr 45 min)**
 - Recall basic design principles and their application to web design
 - Define digital citizenship and how it impacts online behavior
- **Chapter 2: Designing For Consistency & Collaboration (Duration: 2 hr 30 min)**
 - Identify design themes and illustrate visually using a mood board
 - Define the different potential accessibility barriers for users
- **Chapter 3: Responsive Development Layouts (Duration: 2 hr 30 min)**
 - Utilize CSS-based layout techniques to create responsive designs
- **Chapter 4: Unit Project | Business Design & Website (Duration: 2 hr 30 min)**
 - Utilize the web design workflow to create a design brief for a mock company
 - Design a desktop and mobile mock-up
 - Develop the mock-up into a responsive website using HTML, CSS, and JavaScript



SCHOOL-WIDE SERVICES

TECHNICAL SUPPORT: Pitsco Education's team of experienced technical support representatives ensure the labs remain operational and fully functioning. They're on-site for installation, so they understand the unique nature of each lab and treat it as such. They are a call, chat, or email away.

PROFESSIONAL DEVELOPMENT: Mastery Coding's team offers professional development to meet the needs of all districts and schools. This proposal includes :

- **LAUNCH TRAINING:** Get set up with the award-winning curriculum and courseware, including live virtual training, curriculum overview, and courseware setup.
- **ONGOING LIVE TRAINING:** Get live access to the Mastery Coding™ team at regular intervals.
- **ON-DEMAND SUPPORT:** Get quick answers whenever you need them. All teachers have access to the Mastery Coding online forums. These feature: 24-hour response time, community discussions, and feedback and troubleshooting.

HOW WE WILL WORK WITH YOU

We not only strive to deliver quality STEM and CTE programs, we aim to go above and beyond for our customers. We want to make sure we are not only meeting your current education goals, but also setting you, your teachers, and your students up for future success. We are building more than just labs. We want to build strong relationships that will last a lifetime.



A GOOD LISTENER AND LIFELONG PARTNER

You deserve a close and attentive working relationship with a responsive and available team. We take genuine interest in each and every school and district we work with and strive to give you more for your dollar. Knowing your current and future goals and expectations enables us to better support and serve you throughout the design and implementation processes.



TAILORED PROGRAM DESIGN

We're not just a provider of STEM/CTE products, curricula, and programs; we go the extra mile for our customers, listening to your needs and customizing solutions that help you meet your objectives. Through goal-focused communication with an emphasis on student success, our Program Design team works hand in hand with our education advisors and your school or district to outline programs that fit into your CTE initiative.



RIGOROUS PROFESSIONAL DEVELOPMENT

Pitsco professional services include professional development to ready the teacher to facilitate the lab and then ongoing services in the following months and years. These services are designed to provide opportunities to build relationships and a strong knowledge base and to ensure implementation fidelity. The goal is to ensure the teacher is fully equipped to provide a successful experience for all students.



EDUCATIONAL AND TECHNICAL SERVICES

Caring customer service is something we always strive to provide. We have worked hard to create a service network that offers customers professional, personal support. Whether it be through our internal service, our field service representatives, or one of our education advisors who represent us around the country, we hope to get to know you and better meet your needs.



WE WERE TEACHERS FIRST

Our founder was a teacher who realized that education companies didn't understand educators and their needs. That realization formed the foundation of our service-oriented, educator-focused company culture. All of our curriculum is developed by educators, but it goes deeper than that – nearly every department at Pitsco Education includes a former teacher, so a deep understanding of learner and classroom needs is infused throughout our product development, customer service, manufacturing, packaging, and shipping processes.

We understand the impact these things have in your learning environment because we've been there.



OFFICE LOCATION

PITSCO EDUCATION

P.O. Box 1708

Pittsburg, KS 66762

Pitsco.com

WHY PITSCO

- Long-term Partner
- Tailored Program Design
- Lifetime Customer Support
- Professional Development Services
- Timely and Comprehensive Installation
- Industry Leader for 50+ Years



RONNIE THOMAS

800-835-0686, ext. 4560

rthomas@pitsco.com

“Your curriculum is deeper. You deliver 21st-century skills that truly teach kids how to not just look at the content but also be able to communicate and work collaboratively. And there is no comparison to your customer service.”

Cary Johnson, K-12 director of innovation and technology,
Placentia-Yorba Linda Unified School District, CA

