

Tuesday, July 30, 2024

NEW TEACHERS ONLY



9:15-10:00	<b>Registration and Breakfast</b>
10:00-10:15	<b>Conference Kickoff</b>
10:20-10:40	<b>STEM in the Classroom</b> <i>Teaching STEM: PBL (Project Based Learning), pacing, grading, saying "I don't know"</i> Aryeh L
10:40-11:00	<b>Systems Engineering</b> <i>Inputs/outputs – Understanding an engineering system. Thermometer dissection and an introduction to the most popular DIY microcontroller in the world, Arduino</i> Adam
11:05-12:25	<b>Programming 101</b> <i>Getting started with the Arduino Interface. Write your first code and build your first Arduino project!</i> Adam
12:30 – 1:15	<b>Lunch</b>
1:15 - 2:15	<b>Toys in Motion Part 1</b> <i>Toys: An intro into Mechanical Engineering</i> Christopher
2:20 - 3:25	<b>Toys in Motion Part 2</b> <i>Circuits, breadboards, DMM (digital Multimeters), and Soldering: Building the Jitterbug</i> Adam
3:30 - 5:35	<b>The Ins and Outs of Sensors</b> <i>Buttons (digitalRead), Photoresistor (analogRead), &amp; Serial print. Building your first project</i> Adam, Joey

8:00-8:55	<b>Breakfast</b>		
9:00-9:45	<b>Capstone Projects</b> Review requirements for capstone projects and how Innovation Day works. Hear from Advanced teachers in a round-robin for 5 min about their engineering tips and tricks Adam		
9:50-11:05	<b>All of Year 1 in 60 Minutes</b> Technical plateaus and pacing for each unit Adam, Aryeh L	<b>Weather Station Part 1: Wireless Technology Basics</b> - Advanced Learn the different forms of wireless communication for microprocessors through designing and building a remote weather station. This first session focuses on Environmental sensors, wireless basics and project management. Bob, Christopher	
11:10 - 2:15	<b>Flow Control + Servo Motors</b> Compare if, for, while, and switch Use Flow controls to move your servo Adam	<b>"How to: Anything that moves"</b> Stepper motor + DC Motors + transistor + serv. How to test each and when each is needed Aryeh L	<b>Weather Station Part 2: Design and Build</b> - Advanced In this second session, teams will choose a data flow from collection to display and design their wireless weather station based on API data. Bob, Christopher
<b>12:20-1:20 Lunch: Meet Your CIJE STEM Mentor!</b>			
1:20-2:25	<b>AI Intro</b> Overview of AI. Who, What, Where, Why, When and How of AI. Adam	<b>Wireless Weather Station Part 3: Data Visualization</b> - Advanced Participants will learn how to view their data on the web, computer, phone or display device using API protocol, database commands, mobile app and cellular notifications. Bob	
2:30-3:55	<b>Teachable Machines</b> Explore AI through the new AI unit in the POE textbook Dewain		<b>Advanced AI</b> Building an AI Arduino project with Nano 33 BLE
4:00-5:00	<b>60 sensors in 60 minutes</b> Adam	<b>Amped Up!</b> Learn how to use Op-Amps (Applied Engineering textbook) to amplify weak signals. Christopher	Gather and build a dataset and structure a network Adam, Aryeh
5:30-6:30	<b>Makerspace Expedition</b> Join a tour of a school Makerspace and see what's possible. Stay tuned for details.		

8:00-8:55	<b>Breakfast</b>		
9:00-10:05	<b>Ultrasonic Sensor</b> <i>Using an ultrasonic distance sensor. Project: auto-batter</i> Adam	<b>Start Your Engines!</b> <i>Utilizing the CIJE SmartCar and H-Bridge</i> Aryeh L	
10:10-11:05	<b>Voltage Doesn't Matter</b> <i>Powering your projects and why they aren't working</i> Adam, Christopher	<b>Intro to High School Robotics</b> <i>Start and maintain a "winning" robotics team</i> Joey	<b>CIJE Workbench</b> <i>Join the hackathon and explore new, advanced sensors to bring projects to the next level.</i> Bob
11:10- 12:15	<b>Power Management</b> <i>Powering your Arduino and other heavy loads. Learn how to use transistors and relays as switches to turn on devices</i> Joey	<b>Code you Never Knew Existed</b> <i>Arrays, interrupts, port addressing, and more!</i> Adam	
12:20-1:10	<b>Networking Lunch</b>		
1:20-2:25	<b>Tips-N-Tricks: Why It's Not Working, and How to Test it</b> <i>An in-depth analysis of why most common sensors don't work, and how to test them</i> Adam	<b>Biomedical Engineering</b> <i>Overview of concepts in BME, including relevant sensors: IR pulse, galvanic skin, oximeter, EMG (muscle flex), &amp; accelerometer</i> Christopher	
2:30-3:35	<b>Capstone Portfolio</b> <i>Making a complete and thorough capstone portfolio</i> Aryeh L	<b>Capstone Apps - Advanced</b> <i>Making an app to control your Arduino project</i> Adam	