

ARROW UNIVERSITY

October 17th, 2019

Indiana Wesleyan University Cincinnati Campus

9286 Schulze Drive
West Chester, OH 45069

Technical Classes Offered:

	Room 201	Room 202	Room 203	Room 209	Room 214
8:15 - 9:15	Murata	ON Semi	Critical Link	Arrow IoT	TDK
9:30 - 10:30	Kemet	Winbond	Intel	STMicroelectronics (Hands-On)	Arrow Power
10:45 - 11:45	Semtech	Cree	Advantech		Phoenix
11:45 - 1:15	Lunch in Room 204 and Tradeshow in Rooms 215 and 218				
1:15 - 2:15	Silicon Labs	Molex	Analog Device 1	Arrow Artificial Intelligence (Hands-On)	Sanyo Denki
2:30 - 3:30	Vantron	Cypress	NXP		Bourns
3:45 - 4:45	Panasonic	Infineon	Analog Devices 2	Embedded Planet	Fair-Rite

Additional Manufacturers and Representatives in Attendance at the Tradeshow include:
SAI, TE, Vishay, Littelfuse, Digi, CC Electro, Elo Touch, TMC and Abracon

To register, please visit:

<http://tiny.cc/kenxbz>

Our registration website uses Google Forms. If your company blocks this website, you can alternatively register using your smart phone or from your home computer.

Advantech: IoT Solution Co-Creation

Advantech's Co-Creation concept serves as a driver to promote IoT to the industry. We developed our WISE-PaaS IoT software platform for edge computing and have co-created solution-ready packages (SRPs) aimed at diverse fields. Additionally, we plan to secure over 80 domain-focused solution integrators (DFSI), complete SRP development projects for at least 60 clients, and recruit over 1,000 VIP members to its WISE-PaaS platform.

Analog Devices 1: Switch Mode Power Supply (SMPS) PCB Layout

The theory behind switched mode power supply layout - proximity effect, skin effect, magnetic dipoles, shielding with planes, and "hot loops" - will be discussed. The theory will then be put to practical use by demonstrating how to minimize loop area, optimize component placement, leverage ground planes, and properly use vias.

Analog Devices 2: MOSFET Safe Operating Area (SOA) – It's all About Temperature & Time

SOA is a critical design consideration whenever MOSFETs are used in applications requiring that they operate in the linear range such as in hotswap controllers, surge stoppers and discrete LDOs. We will discuss what SOA is, how SOA ratings shown in MOSFET datasheets are created, and how to determine minimum SOA requirements for specific applications. Videos demonstrating how heat travels from MOSFET junction into the PCB will be shown. LTspice SOA simulation will be demonstrated.

Arrow Artificial Intelligence: Hands-on AI Workshop (2 hour Hands-On)

Significant performance advances in embedded computing are bringing new capabilities to traditional IoT applications. You are invited to join Arrow Electronics for this artificial intelligence workshop. During this session you will complete several hands on exercises that explore common artificial intelligence applications.

Arrow IoT: How Arrow can help customers develop and deploy IoT products

In this session, we will discuss how Arrow can partner with our customers, develop a successful IoT business model, build-out the entire IoT stack, provide all of the pieces it takes to develop a comprehensive IoT solution leveraging modern monetization strategies, and weave ourselves with a customer's core competencies to bring IoT solutions to life.

Arrow Power: The Growth of Power in Key markets with focus on Digital Power

This course will cover latest updates to Arrow's Power/Thermal product portfolio and Value Add Custom Power followed by a discussion on digital power supplies and on identifying the best solutions for power applications including the iHP (high power system). The course will wrap up with solutions to real world power applications in harsh environment industrial facilities, Medical, MiL-COTS and battery applications.

Bourns: Circuit protection and conditioning - Protection for your sensitive load

We will be discussing circuit port protection with our new GDT/MOV stacked device, custom and standard magnetics , high speed Transient Blocking Unit (TBU) as well as new AECQ and standard TVS Diodes.

Cree: Silicon Carbide - Transforming the Future of Power

Wolfspeed Silicon Carbide devices are enabling the future of power electronics. This webinar will focus on applications where Wolfspeed Silicon Carbide MOSFETs and schottky diodes can improve efficiency, reduce system size/weight, and reduce overall system cost when used in new or existing power supply topologies.

Critical Link: A Smarter Embedded System: Rethink what you can achieve in your next design.

Technical discussion on how developers are leveraging embedded systems to reduce bottlenecks and improve performance for industrial applications. Explore techniques for moving processing closer to the sensor while leveraging embedded Linux and FPGA co-processing. We will use real-life case studies to illustrate solutions in the medical, scientific, and industrial imaging fields.

Cypress: USB Type C

Cypress EZ-PD Barrel Connector Replacement (BCR) device allows users to quickly convert their devices traditionally powered through a barrel connector to being powered through a USB-C connector with evaluation kit giveaway. Looking to design your own USB-C PD? We will demonstrate EZ-PD CCGx development tools and discuss CCG3PA reference designs.

Arrow University – ABSTRACTS – Page 2

Embedded Planet: New epConnect IoT Solution for Cellular and Device Management

We will provide an update for our epConnect IoT solutions including our new epConnect Device Management software, epSensors (including cellular), epGateway and epCloud implementations. Any of the epConnect solutions can send data to Microsoft Azure, Amazon AWS or IBM Cloud directly. Wireless technologies available include Cellular, SmartMesh IP, LoRa, Wi-Fi, BLE and custom sub-GHz.

Fair-Rite: Solving Electromagnetic Interference (EMI) With Ferrites

We'll discuss using ferrite cores for the suppression of Electromagnetic Interference (EMI). The focus will be on the intrinsic characteristic of the ferrite material, the complex permeability and its relationship to the ferrite component's impedance. We will be discussing the effect of environmental conditions on the ferrite component's performance including frequency, field strength, temperature and core geometry.

Infineon: What is Embedded Security?

Security is a crucial building block for any connected device. In this class we will explore some of the basics ranging from terminology used by the security industry, to what are some of the common use cases for security, and what are some of the best ways to implement them.

Intel: Machine Learning & Visual Analytics using OpenVINO Toolkit

Intel will introduce you to the OpenVINO™ toolkit including support for deep learning algorithms that help accelerate smart video applications. You will learn how to utilize Intel's external accelerator, including CPU, VPU, GPU, FPGA and tools to help you identify the best hardware configuration for your needs. This class will introduce all technologies but will focus on the FPGA accelerator solutions.

Kemet: Beyond Capacitors - Magnetics, Sensors and Actuators

KEMET Electronics offers the broadest selection of capacitor technologies in the industry, along with an expanding range of electromechanical devices, electromagnetic compatibility solutions and supercapacitors. We will cover our magnetics, sensors and actuator products.

Molex: ISI Signal Processing Cards and Advanced Packaging Solutions

The Molex ISI group has standard and customized Signal Processing Cards with Advanced 3D packaging. ISI can provide circuit, PCB, substrate, thermal and mechanical design consultation coupled with a vertically integrated manufacturing strategy, including bare die attachment, encapsulation, advanced SMT, lead-frame implementation, solution ruggedization and testing.

Murata: IoT - Murata's Wireless Module and Sensing Solutions

Learn how to implement real-time monitoring and data collection solutions including Wi-Fi and BT modules, high resolution sensors and batteries. Murata's portfolio includes: Actuators, Shock, Combo Acceleration and Gyro, Inclinator, Barometric Pressure, 3D AMR, Rotary Position, PIR, Ultrasonic, Thermistors and Ballistocardiography (BCG) sensors.

NXP: LPC5500 Family Intro

Join NXP to discuss the latest LPC5500 family, one of the first MCU's with ARM's M33 core with full ARMV8-M Implementation. The LPC5500 series is one of the most performance efficient MCU's in NXP's portfolio and has a PowerQuad DSP. With the release of the LPC5500 series, NXP has updated it's MCUXpresso configuration tools to include a TrustZone Configurator to help secure your design.

ON Semiconductor: Design Considerations when Implementing Motor Control Technology

We will discuss design challenges of implementing stepper, BLDC, and Brushed motor control technologies in the 5 W – 100 W power range as well as how to transition from brushed to brushless technology. You will also learn the definition of Electric Drive, how Electrical Energy is transformed into Mechanical Energy, different types of motors and where each Motor is most efficient.

Arrow University – ABSTRACTS – Page 3

Panasonic: Bluetooth Low Energy (BLE) 5.0 and the Smart Home

Come learn about BLE 5.0 with a smart doorbell using the Panasonic's Toshiba-based PAN1762 module and a smart appliance controller using the Nordic-based Panasonic PAN1780 module. Attendees will receive an overview of BLE, hands-on demos of the BLE modules and take a dev kit home with them.

Phoenix Contact: Explore the versatility of M12 and M23 cables and receptacles

The M12 circular connector family supports a wide range of applications in a convenient standardized format, offering a wide selection of designs for a comprehensive connection solution. Once considered a standard for sensor cabling, the M12 has expanded to support data rates up to 10 Gbps and power up to 16 amps and 600 volts. If increased performance is necessary, M23 offers a solution.

Sanyo Denki: Optimal fan selection for efficient thermal design

Learn about our unique fan design characteristics for rugged and energy efficient applications. Also learn about high efficiency motor development to achieve high speed as well as innovative ingress protection features in next generation splash-proof fans. Recognize pros and cons of fan features with varying life expectancy and airflow performance that will help you in selecting the optimal fan for your needs.

Semtech: The DNA of IOT - LoRa - the Worldwide Standard for long range, low power and cost

Next Gen LoRa is here with improved reach (miles), the lowest power, and secure networks for low data rate communication. The LoRa Ecosystem provides choices for private Star topology networks or the many LoRa Public Networks. We will discuss how LoRa compares to other wireless technologies and how to achieve unmatched receiver sensitivity, security, battery life and cost efficiency.

Silicon Labs: Wireless Xpress Workshop. Zero programming, Prototype in a day

Attending this workshop will provide in depth discussion on the purpose and benefits of using Wireless Xpress. The lab exercises will walk through the process of using this solution to connect to Bluetooth and/or Wi-Fi. Experience first-hand how easy it can be to connect an existing microcontroller project to Bluetooth or Wi-Fi.

STMicroelectronics: Introducing the STM32 G4 Mixed Signal MCU (2 hour Hands-On)

Come and get your hands dirty with the new STM32G4 mixed signal MCU. The STM32G4 is ideal for today's advanced control and measurement applications with its rich analog peripheral set and high performance. In this session, you will learn about new features such as the mathematical accelerators (FMAC and CORDIC) and then experience a hands-on lab using the new G4 discovery board.

TDK: Piezo & Protection Solutions for New Applications in Demanding Environments

Applications such as Electric Vehicle, Renewable Energy, Smart Systems, Power Supplies and Human Machine Interface are emerging which have new requirements based on ambient conditions in which they have to operate. We will cover a broad and deep range of various solutions for these requirements.

Vantron: Sensors, IoT Modules, and Smart Cellular Gateways

Participants will learn about our Sensors, IoT Modules & Smart Cellular Gateway solutions already deployed in real customer applications. There will be a demonstration of a LoRa based sensor that includes an accelerometer, GPS, temperature, humidity, and light sensors. We'll discuss provisioning, transmitting to the gateway and cloud and viewing data hosted at our data center on the Dashboard.

Winbond: Advanced Memory Techniques to Update Firmware OTA in Edge Devices

Today's system designers are asked to devise code update strategies which involve updating the firmware for systems that have been deployed in the field. Over-the-Air (OTA) encompasses updates via both wired and wireless methods. This seminar will discuss Winbond's homogenous SpiStack memories and explains how they can be used to facilitate and simplify the OTA process.