



THE INTERNET OF THINGS (IoT): APPLICATIONS AND OPPORTUNITIES

SPECIALIZED STUDIES PROGRAM • ONLINE

Computer size is dropping and the number of sensors is dramatically increasing; the digital world is indeed becoming more aware of and more connected to the physical world while the job market for technical professionals who can leverage these connections to drive business value is also growing exponentially.

By 2020, it is predicted that there will be over 50 billion devices connected to the internet. Over 100 times as many as existed just 10 years ago – that's nearly 7 devices for every person on the planet. These devices will span industrial, commercial and consumer markets via ambient computing and will be able to intelligently communicate with each other and intelligently respond to human interaction and business needs in a remarkable variety of ways. The Internet of Things (IoT), Big Data and the Cloud create a new very fertile ecosystem that has and will make our lives more effective and enjoyable and provide vast new opportunities for business to improve their operational efficiencies and provide opportunities for growth.

The program provides students with the knowledge and skills required to take advantage of this next major shift in technologies and the related exponential growth in the job demand. We will explore the tools, technologies, platforms and languages used to create exciting new connected devices. According to the Gartner research organization, 75% of executives are currently pursuing IoT related products and/or processes in their organization to drive business value. The economic impact of IoT is estimated to be between \$10-15 trillion in the next 5-10 years. The program is designed to help both individuals and business leverage this new and exciting technological wave, understand the related technologies and create solutions that focus on the benefits of simple interactivity and large-scale connectivity.

WHO SHOULD ENROLL

The program is ideal for those who are looking to build foundational knowledge in Ambient Computing and IoT to improve their business operations and increase their career options. For those already in the industry, the program includes practical application courses designed to increase the depth and breadth of their understanding of Ambient Computing and IoT. The curriculum is also designed for those who are looking to enter this growing field.

PROGRAM BENEFITS

- Understand the business opportunities of Ambient Computing and IoT
- Design organic computing devices that sense, perceive, and react appropriately
- Have fun using new technologies that will be an ever-increasing part of our future
- Identify the main components of IoT devices
- Understand the concept of Ambient Intelligence to increase personal and industry productivity and effectiveness
- Utilize IoT standards for interoperability, machine-to-machine communication, and security
- Utilize a variety of techniques to connect to and read sensor data
- Explain different IoT technologies and their applications
- Discern the basic functionality of the Arduino and Raspberry Pi hardware systems
- Understand how to secure and monitor the entire system of devices, the connectivity, and the information exchange
- Identify related network concepts including cellular, Wi-Fi, Bluetooth LE, ZigBee, and ZWave
- Orchestrate signals and objects to fulfill complex events or end-to-end business processes

CERTIFICATE ELIGIBILITY AND REQUIREMENTS

A specialized studies certificate is awarded upon completion of 9 credit units (3 required courses) with a grade of "C" or better in each course. All requirements must be completed within 5 years after the student enrolls in his/her first course. Students not pursuing a certificate are welcome to take individual courses.


PROGRAM FEES

Actual fees may differ from the estimate below. Fees are subject to change without prior notice.

Course Fees (9 required units)	\$2,235
Candidacy Fee	\$35
Textbooks	\$550
Total Estimated Cost	\$2,820

TO ENROLL

Visit ce.uci.edu/IoT for full course descriptions, instructor biographies, and enrollment information.

IEEE Members receive 15% off of one course per quarter.	
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FOR MORE INFORMATION:

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COURSE#	REQUIRED COURSES (9 units)	UNITS
EECS X480	Ambient Computing and the Internet of Things (IoT)	3
I&C SCI X481	Designing and Integrating IoT Devices	3
I&C SCI X482	Networking and Securing IoT Devices	3