Programmable Infrastructure Courses

We live in a digital world where every day more and more devices connect to the network. With computing costs dropping, this trend will continue to grow. Using programmable software code, sensors and actuators monitor and control the physical world. And that's just the beginning. This world of IoT devices generates vast amounts of data -- data that can be analyzed, providing business insights -- data that optimizes business decisions and automates processes. Thanks to the programmable infrastructure, new features are added to the network with easy-to-write programmable code.

Our Programmable Infrastructure courses develop diverse skills such as programming, data analytics, and systems-level thinking, together with a strong focus on security and business considerations when using new technologies. Students learn practical career-ready skills that employers need in this expanding digital world.

Course	Introduction to Internet of Things (IoT)	IoT Fundamentals: Hackathon Playbook	IoT Fundamentals: Connecting Things
Course Overview	An overview of networking foundational concepts for connecting billions of devices and creating trillions of gigabytes of data -- all available to enhance business decisions.	A comprehensive framework of tools and templates to prepare and run a hackathon – based on best practices learned from IoT hackathons delivered around the world.	Teaches how to securely interconnect sensors, actuators, microcontrollers, single-board computers, and cloud services over IP networks creating an end-to-end IoT system.
Benefits	Students gain a big picture view for how emerging technologies are shaping digital business. Plus they learn about career opportunities in this exciting new landscape.	With hands-on activities, students reinforce and deepen multidisciplinary IoT and data skills by defining, designing, prototyping, and presenting an IoT solution to a panel of industry experts and peers.	Students develop interdisciplinary skills required to prototype an IoT solution for a specific business case – includes a strong focus for security considerations using new and emerging technologies.
Target Audience	Secondary, vocational, 2-year college, general audience	Secondary, vocational, 2-year and 4-year college, 4-year university students	Secondary, vocational, 2-year and 4-year college, 4-year university students
Prerequisites	None	IoT Fundamentals: Connecting Thing, and/or Big Data & Analytics	Basic programming, networking and electronics
Certification	No	No	No
Additional Details	• No instructor training required • Self-paced or Instructor-led • 20 hours	• ASC alignment required • No instructor training required • Instructor-led • 20-30 hours	• ASC alignment required • Instructor training required • Instructor-led • 40-50 hours
Next Course(s)	CCNA: Introduction to Networks (ITN); IoT: Connecting Things	Any Career course offering from Cisco or an industry IoT training program	IoT Fundamentals: Big Data & Analytics or Hackathon Playbook

Networking Academy
Programmable Infrastructure Courses

Course	IoT Fundamentals: Big Data & Analytics	Emerging Tech Workshop: Network Programmability	Emerging Tech Workshop: Experimenting with REST APIs
Course Overview	A short course that teaches how to use Python data libraries to create a pipeline to acquire, transform, and visualize data collected from IoT sensors and machines.	A short workshop that introduces basic competencies to operate and automate management tasks on a controller-based network.	Introduces basic competencies that creates applications and automates tasks using REST APIs -- the most popular architecture for software integration in IT.
Benefits	The transformative element of any IoT system is the data collected. Students increase employability by gaining skills to extract and use data analytics for business insights.	Students learn and practice Python programming skills and tools, which culminates in live interactions with the APIs on Cisco programmable controllers-- uses Cisco DevNet Sandbox.	Students practice Python programming skills and tools, culminating in live interactions with APIs on Cisco collaboration software, Webex Teams online platform.
Target Audience	2-year and 4-year college, 4-year university students	Vocational, 2-year and 4-year college, 4-year university students	Vocational, 2-year and 4-year college, 4-year university students
Prerequisites	IoT Fundamentals: Connecting Things	Basic programming, CCNA Introduction to Networks (ITN) and CCNA: Switching, Routing, and Wireless Essentials (SRWE) level networking	Basic programming
Certification	No	No	No
Additional Details	• ASC alignment required • Instructor training required • Instructor-led • 40-50 hours	• ASC alignment required • Instructor training required • Instructor-led • 8 hours	• ASC alignment required • Instructor training required • Instructor-led • 8 hours
Next Course(s)	IoT Fundamentals: Hackathon Playbook CCNA: Introduction to Networks (ITN)	Recommended Insertion: • After CCNA: Switching, Routing, and Wireless Essentials (SRWE) • Within CCNA Security or CCNP R&S	Recommended Insertion within: • PCAP: Programming Essentials in Python • IoT: Connecting Things • IT Essentials • CCNA: Introduction to Networks (ITN)