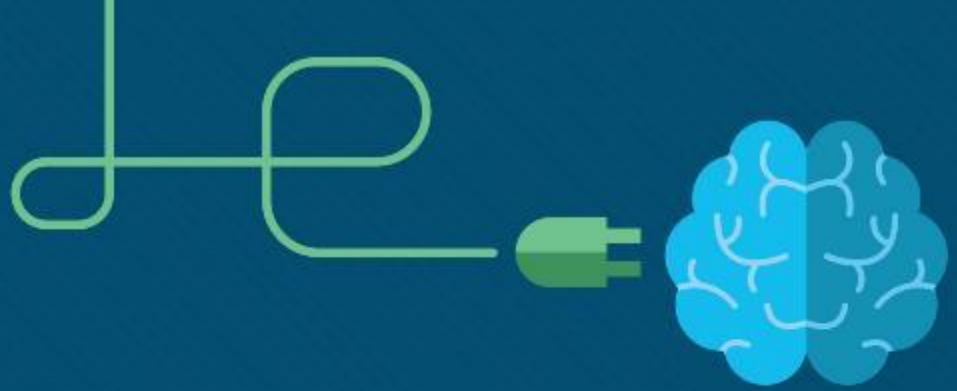

Course and Technical Updates

Eugene Morozov
Technical Manager CEE-RCIS, N&B
31 March, Regenstauf

#NetAcadIPD

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Associate

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Sub-Sahara

Ananth
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APAC/Japan

Agenda

- IoT Fundamentals
- Packet Tracer 7
- C and C++ Courses
- Cybersecurity Essentials
- Networking Essentials
- CCNA R&S Updates
- Certification and Vouchers
- Instructor Professional Development

IoT Fundamentals

Perfect Storm

Massive Youth Unemployment

74M

Unemployed Youth

McKinsey Center for Government, Education to Employment

Growing Skills Shortage

63%

of CEOs see lack of skills as a serious concern

PWC, 17th Annual Global CEO Survey

Unprecedented Opportunity

$11.1T

Economic Value Add by 2025

McKinsey Global Institute; IoT: Mapping the Value Beyond the Hype

Digital Transformation across Countries and Companies

Smart City

Smart Hospital

Smart Highway

Smart Factory

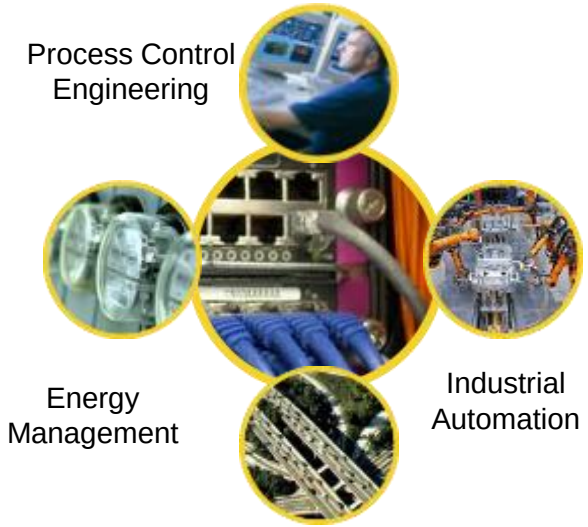
New Opportunities = Employment Paths for Students

Existing Networking Academies

Information Technology

1M Students
20K Instructors
9K Academies

New Academies and/or New Departments at Existing Academies



IoT Fundamentals Course Summary

	Course Overview	Benefits	
Connecting Things	Students learn how to securely interconnect sensors, actuators, microcontrollers, single-board computers, and cloud services over IP networks to create an end-to-end IoT system.	Students will develop multi-disciplinary skillsets required to prototype an IoT solution for a specific business case with a strong focus on the security considerations for emerging technologies.	Course Delivery: Instructor-led Estimated Time to Complete: 40-50 hours
Big Data & Analytics	Students will learn how to use Python data libraries to create a pipeline to acquire, transform and visualize data collected from IoT sensors and machines.	The transformative element of any IoT system is the data that can be collected from it. Thus the ability to extract data and using data analytics techniques to gain insights increases employability.	Course Delivery: Instructor-led Estimated Time to Complete: 40-50 hours
Hackathon Playbook	The Hackathon Playbook is a comprehensive framework of tools and templates to prepare and run a Hackathon as a result of best practices and lessons-learned collected from the global execution of IoT Hackathons within Networking Academy and by other organizers.	Student reinforce and deepen their multidisciplinary IoT and data skills by defining, designing, prototyping and presenting an IoT solution to a panel of industry experts and peers.	Course Delivery: Instructor-led Estimated Time to Complete: 20-30 hours

IoT Fundamentals: Connecting Things

Course Overview

Students learn how to securely interconnect sensors, actuators, microcontrollers, single-board computers, and cloud services over IP networks to create an end-to-end IoT system.

Benefits

Students will develop multi-disciplinary skillsets required to prototype an IoT solution for a specific business case with a strong focus on the security considerations for emerging technologies.

Learning Components

- Understand and explain the concepts, opportunities and challenges of digital transformation using IoT.
- Interconnect sensors/actuators, microcontrollers (Arduino), Single Board Computers (Raspberry Pi) and cloud services (Cisco Spark restful API) to create an end-to-end IoT system.
- Understand the relevant aspects of cybersecurity and privacy for an IoT solution.
- Understand how digitalization is changing vertical markets such as manufacturing, energy, and smart cars.
- Use simulation tools (Packet Tracer) to create end-to-end IoT system.

Features

Target Audience: Secondary, Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: Basic programming, networking and electronics

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 40-50 hours

Recommended Next Course: IoT Fundamentals: Big Data & Analytics or Hackathon Playbook

Instructor Training: Required

IoT Fundamentals: Big Data & Analytics

Course Overview

Students will learn how to use Python data libraries to create a pipeline to acquire, transform and visualize data collected from IoT sensors and machines.

Benefits

The transformative element of any IoT system is the data that can be collected from it. Thus the ability to extract data and using data analytics techniques to gain insights increases employability.

Learning Components

- Use Python to read data from sensors and store data in a SQL data base.
- Use Python Data Analysis library to clean, manipulate, integrate data sets.
- Use Python Visualization Libraries to visualize real-time data end explore acquired data sets.
- Explain the fundamental principles of a modern scalable Big Data platforms like Hadoop.
- Use storytelling to present the insights gained from extracted data.

Features

Target Audience: Secondary, Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: IoT Fundamentals: Connecting Things

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 40-50 hours

Recommended Next Course: IoT Fundamentals: Hackathon Playbook

Instructor Training: Required

IoT Fundamentals: Hackathon Playbook

Course Overview

The Hackathon Playbook is a comprehensive framework of tools and templates to prepare and run a Hackathon as a result of best practices and lessons-learned collected from the global execution of IoT Hackathons within Networking Academy and by other organizers.

Benefits

Student reinforce and deepen their multidisciplinary IoT and data skills by defining, designing, prototyping and presenting an IoT solution to a panel of industry experts and peers.

Learning Components

- Inspiration: understand, select and present the problem to be solved to recruit fellow partners.
- Ideation: invent a concept that doesn't already exist to solve a social issue. Learn how to present the solution to experts who will mentor students.
- Prototyping: create a prototyping action plan, including objects and visuals to illustrate their plan and will help an expert understand the concept and prototyping needs.
- Testing: present the concept and validate the prototype with a second expert, including user experience and enhancements.
- Presentation: present the solution and demo the prototypes to an expert panel.

Features

Target Audience: Secondary, Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: IoT Fundamentals: Connecting Things and/or Big Data and Analytics

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 20-30 hours

Recommended Next Course: any Career-Ready offering from Cisco or an industry IoT training program

Instructor Training: Required

Cisco Prototyping Lab

Tool Overview

The Cisco Prototyping Lab is a comprehensive learning environment created by Cisco for Networking Academy students to learn and practice key aspects of the foundational IoT technologies. Using an engaging, hands-on approach, it supports both the learning and creative phases of the Networking Fundamentals curriculum.

Career Prep

Provides an easy to use, comprehensive learning environment using real devices, code, coding tools and data that students use to create the physical interconnection of an end-to-end IoT and the logical data pipeline to acquire, analyze and present data.

Learning Components

- Prototyping Lab App
- Prototyping Lab Kit
  - Raspberry Pi 3 CanaKit Ultimate Starter Kit (or equivalent)
  - SparkFun Inventor's Kit for Arduino v3.2 (or equivalent)
  - Cables, sensors & actuators

Features

As an integral part of the Networking Academy learning experience, Cisco Prototyping Lab provides

- Interactive labs using Jupyter Notebook
- Visual programming with Blockly
- Device programming with Python
- Data visualization & analytics
- Connected applications via APIs
- Rapid Prototyping

Packet Tracer

Tool Overview

Packet Tracer is an innovative simulation and visualization tool used for lectures, labs, games, homework, assessments, and competitions. It is embedded in these courses:

- CCNA Routing and Switching
- CCNA Security
- IT Essentials
- Intro to the Internet of Things
- Mobility Fundamentals

Career Prep

The Packet Tracer simulation-based learning environment promotes the development of essential career skills ranging from teamwork and critical thinking to creative problem solving.

Learning Components

- Cisco Packet Tracer (PT)
- PT Mobile Android
- PT Mobile iOS
- PT Games

Features

As an integral part of the Networking Academy learning experience, Packet Tracer provides

- Simulation
- Visualization
- Authoring
- Assessment
- Collaboration capabilities and facilitates the teaching and learning of complex technology concepts.

IoT Fundamentals Approach

A Multidisciplinary Digital Foundation

IoT Fundamentals

Electronics
Programming
Networking
Data Analytics
Cybersecurity
Problem solving
Design thinking
Soft skills

…For Many IoT Career-Ready Pathways

IoT Data Analyst

IoT Product Manager

IoT Device Management

IoT Security

and many others

Recommended Entry Knowledge

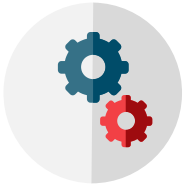
Recommended pre-requisite knowledge for IoT Fundamentals:

- Familiarity Basic TCP/IP Networking including cabling and interconnecting devices in Ethernet LAN and to Internet.
- Familiarity with Cisco Packet Tracer, a network and IoT devices simulation application
- Foundational knowledge of Python or any other imperative programming language to solve basic algorithmic problems
- Foundational knowledge of physics including current, voltage, resistance, and power.

Note:

Although not mandatory, student learning will be amplified if the students have completed one or more of the following Networking Academy Courses:
One course from our Networking Product Line:

- Networking Essentials | CCNA 1 Introduction to Networks | IT Essentials
- Python course (coming soon!)
- Cybersecurity Essentials
- PT Know How
- Introduction to IoT



IoT Fundamentals contains optional refresher material for the above skills when needed at the start of each chapter

IoT Fundamentals
Instructor Training Requirements

Recommended Qualifying Skills

- Basic TCP/IP networking including cabling and connecting devices in a LAN and to the Internet.
- Familiarity with Cisco Packet Tracer, a network and IoT devices simulation application.
- Experience using any programming language to solve basic algorithmic problems.
- Foundational knowledge of physics including current, voltage, resistance, and power.

Recommended Experience

- Teaching Quantitative problem solving skills
- Business context (Professional non-academic work experience or guest speakers)

Instructor Training & Support:

1. Academies must align with an ASC.
2. Instructor Training is required.
3. Instructors can enroll in a self-paced basic training course on their own

or register for training with an ITC.

NOTE:
IoT Fundamentals Limited Availability instructors are accredited to teach v2.0 with no additional instructor training. Limited Availability Instructor Trainer participants are also qualified to create ITC courses for v2.0.

IoT Fundamentals
Instructor Training Options

Novice in the IoT domain* or prefer in-person training

Option 1

ITC Value-Add Course

- **Best in class training by an expert Instructor Trainer focusing on in-person hands-on or blended training**

Experienced in one or more disciplines of the IoT domain*

Option 2

Online Self-Paced Course

- **Most flexible solution for experienced instructors planning immediate adoption**

* Ex. Maker, Teacher of embedded computing or electronics

Offering Summary

Key Information	IoT Fundamentals
Announcement Dates	• April 2017 for Connecting Things, Hackathon Playbook • May 2017 for Big Data & Analytics
Target Audience	Secondary, Vocational, 2-Year College, 4-Year College and University students
Portfolio Placement	Foundational, Collaborate for Impact
ASC Requirements	Required
Instructor Training Requirements	Required: Self-paced Training and/or ITC-led ILT options • LA participants and special cases are grandfathered
Equipment Requirements	Prototyping Lab Kit (see Scope & Sequence for details)

A New NetAcad Hands-On Experience

IoT Fundamentals | Lab Experiences

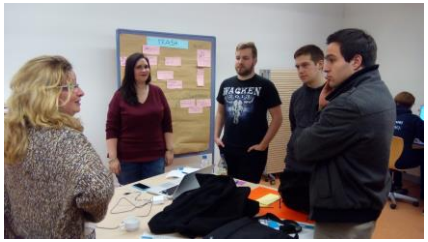
Analyze the Problem with User Focus

Hands-on Design and Maker Mindset

Rapid Prototyping, Iterating, Presenting

Hackathons in Germany

- Hamburg January 2016
- Berlin February 2016
- Berlin May 2016 – instructor hackathon
- Berlin October 2016 – creathon
- Berlin November 2016 – Partner Summit
- Berlin February 2017 – packathon



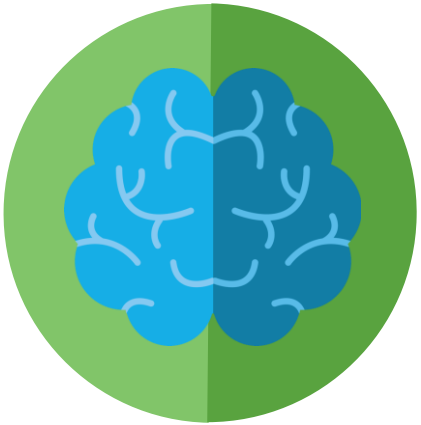

Instructor hackathon in Munich 3-5 May 2017
“SMART Environment – Green ICT Solutions for the Future City”
You are invited!

Packet Tracer 7

New in Version 7

New network protocols

Environment and IoT

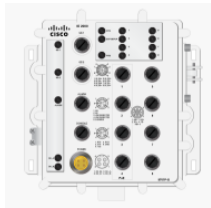


Programming

New Network Protocols and Devices

- SPAN/RSPAN support
- L2NAT support
- PTP support
- REP support
- LLDP support
- IOx support
- DHCP Server Port-Based Address Allocation support
- Improved PoE support
- Improved copy and paste support
- Piping support in show commands
- IoT Switch protocol support
- HTTP Server Improvements

- 819IOX Routers
- 829 Router
- 1240 Router
- IE 2000 switch

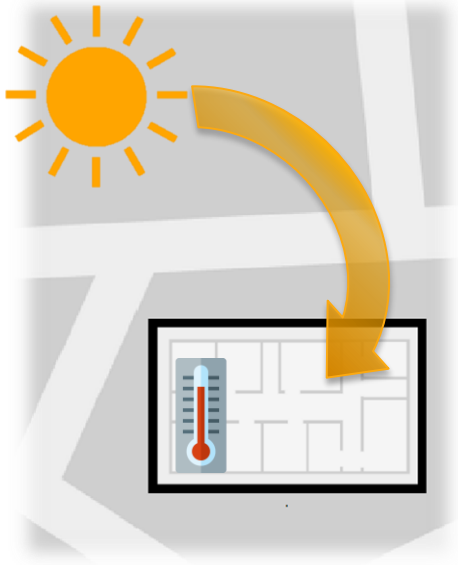


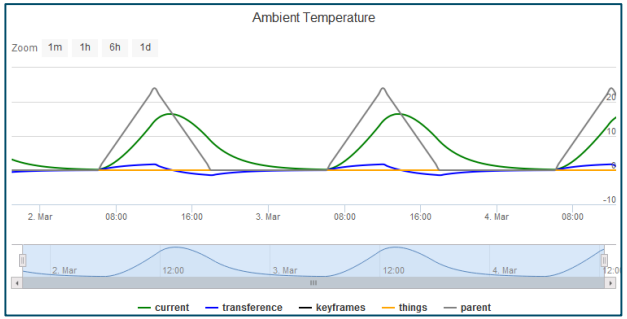
Physical Environment

- Generic Container Creator
- Volume control for containers

- Many environmental parameters are simulated
- Environment constantly changes in daily cycles
- Transference between containers

CO_2	0.0360 %
He	0.0005240 %
H	0.00050 %
Methane	0.000150 %
Nitrogen	78.0840 %
O_2	20.9460 %
◢ Gravity	
Gravity	9.80 m/s^2
◢ Light (Sun)	
Electromagnetic Radiation	83.33 %
Infrared	45.83 %
Radiant Heat	83.33 %
Sunlight	83.33 %
Ultraviolet	2.50 %
Visible	35.00 %
◢ Other	
Atmospheric Pressure	101.3250 kPa
◢ Temperature	
Ambient Temperature	20.00 C
◢ Water	
Clouds	9.58 %
Humidity	70.83 %
Rain	0.92 cm
Snow	0.00 cm
◢ Wind	

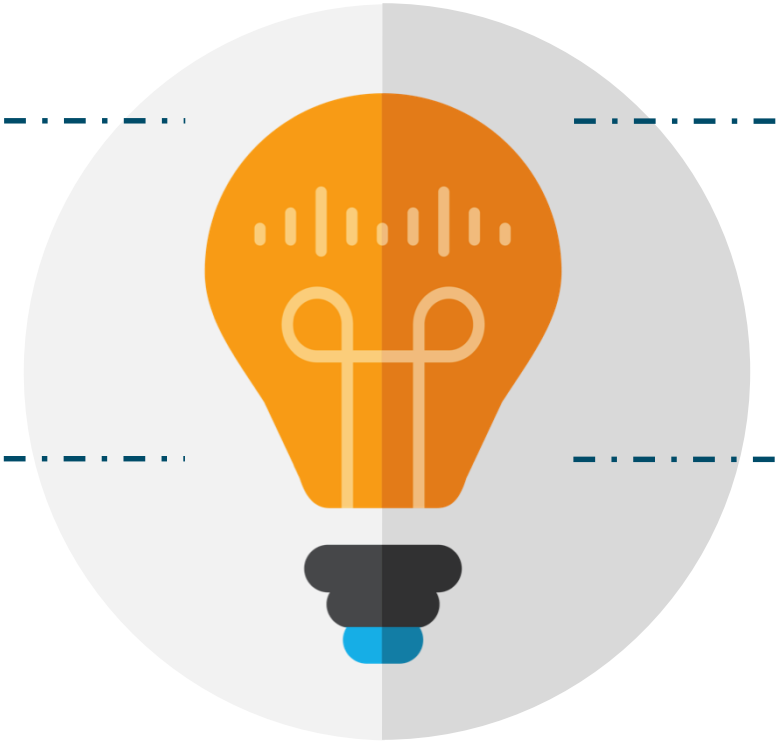




New IoT Devices

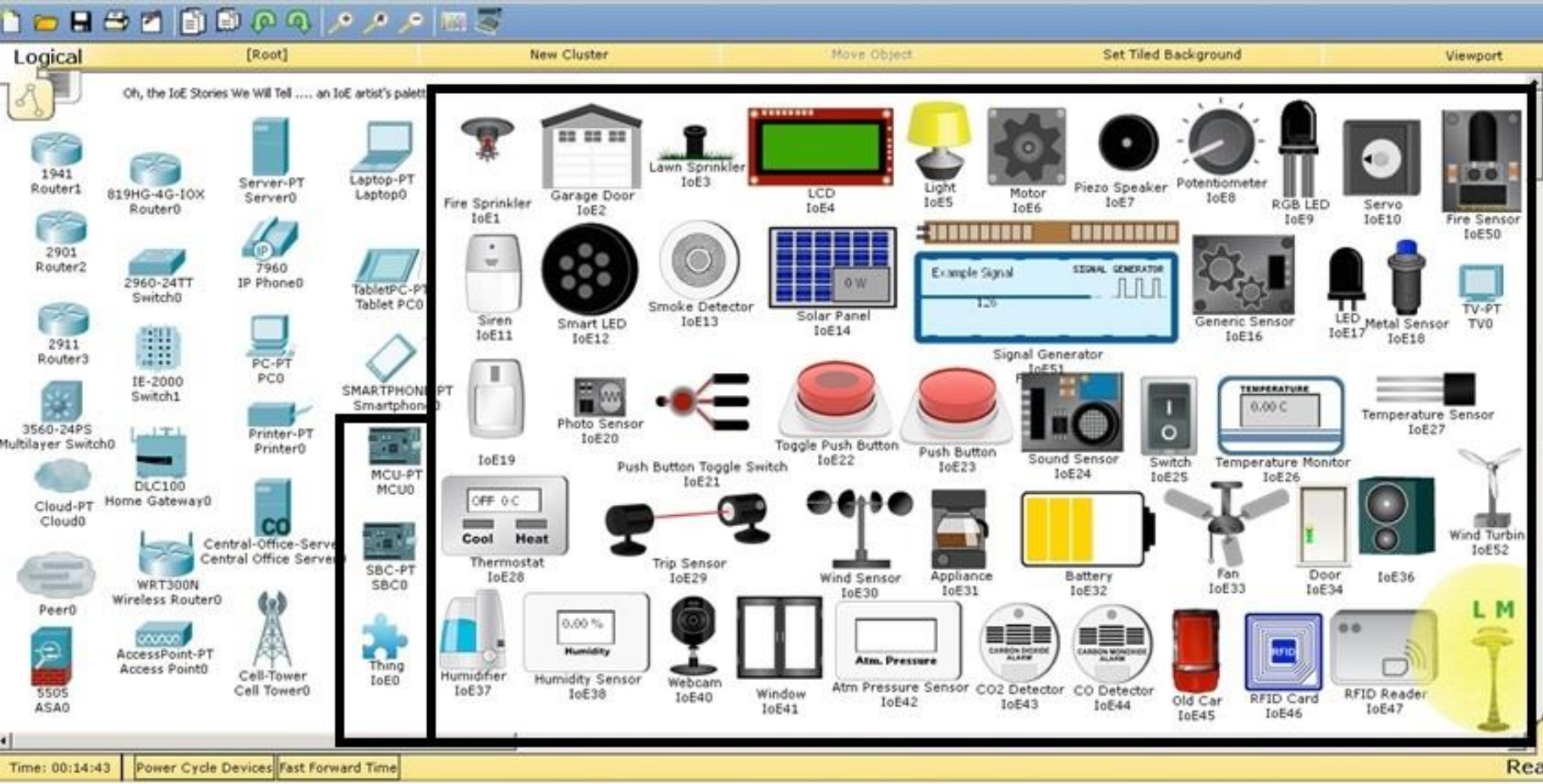
Home

Industry



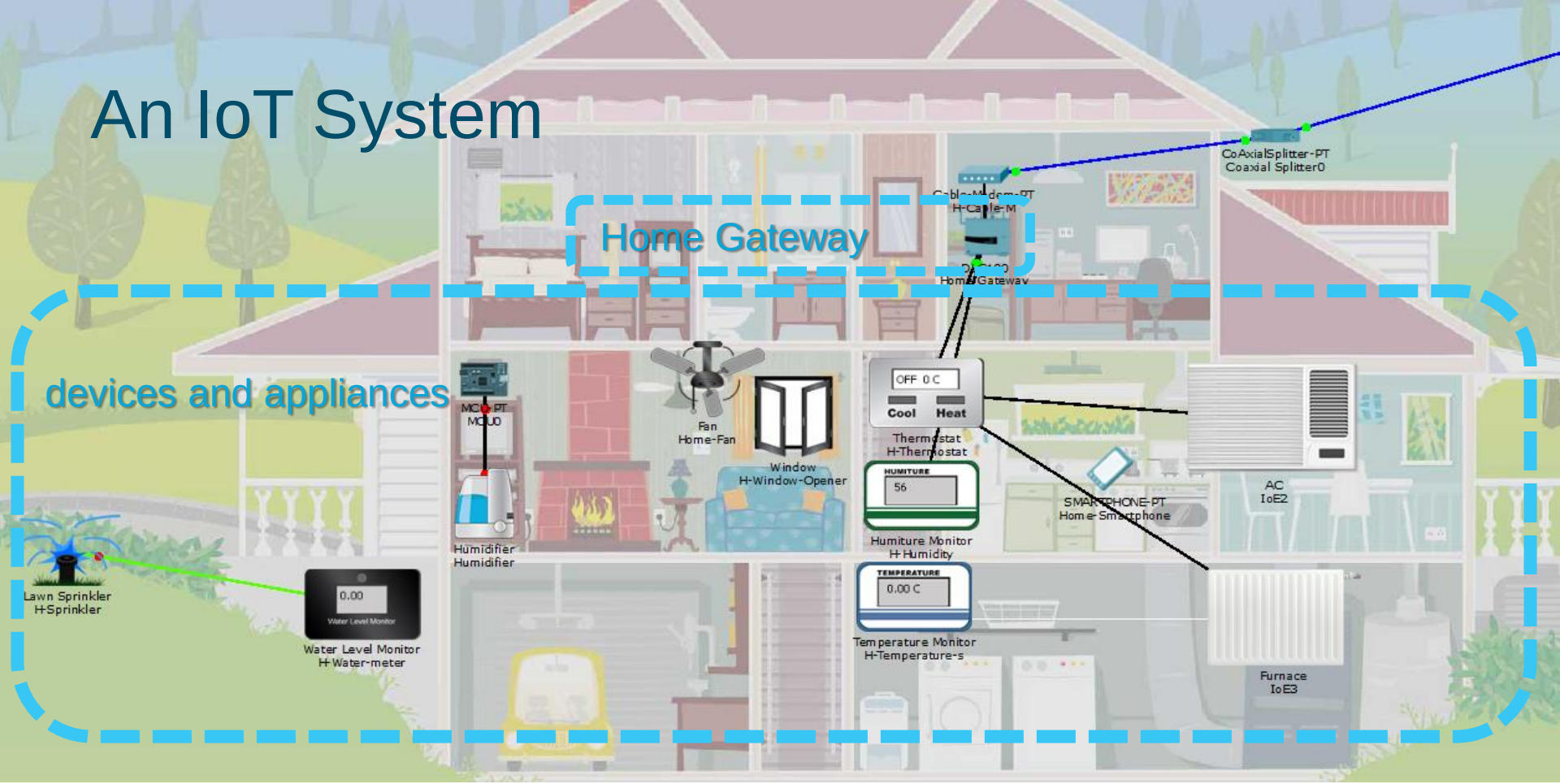
City

Power

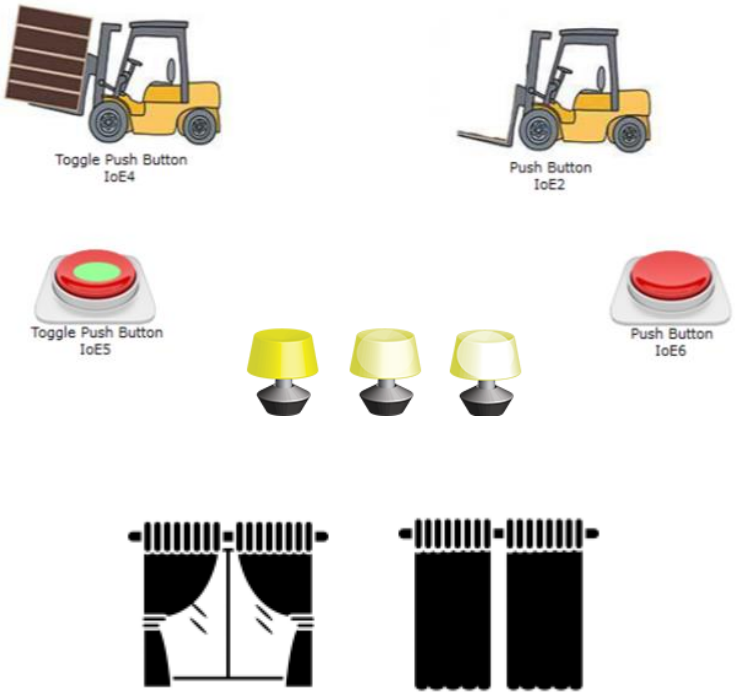


All devices that are inside the boxes are completely new in PT7.0

An IoT System



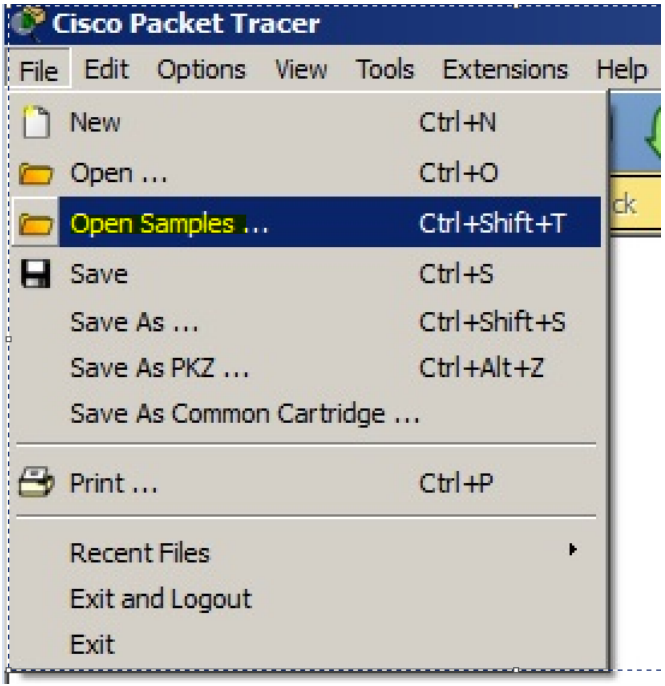
Custom Devices

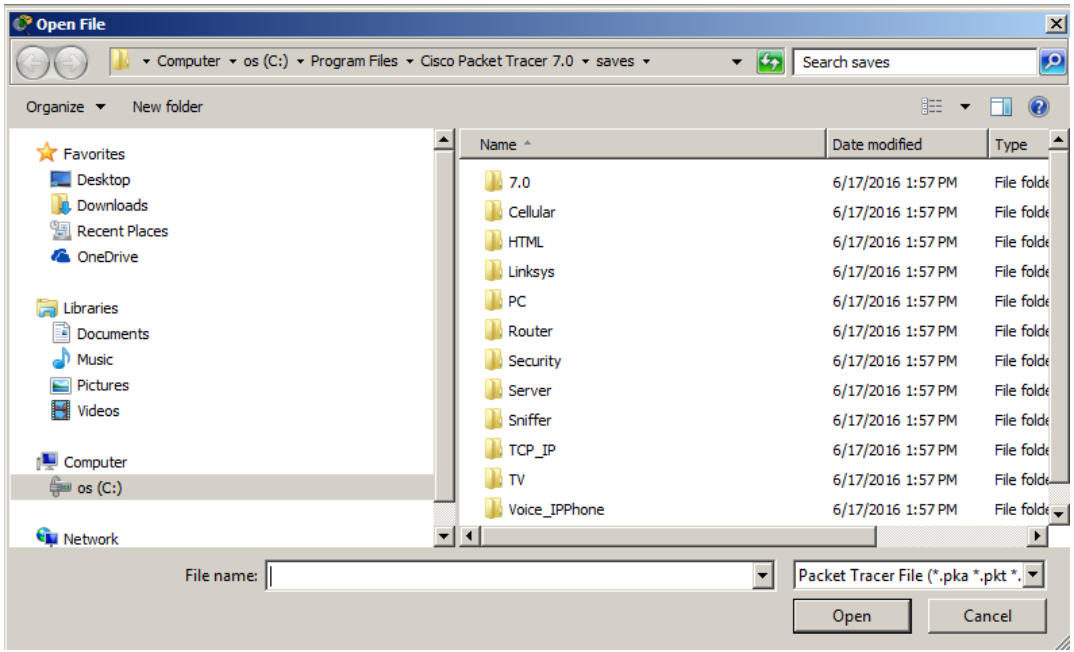


- Start with existing device or generic “Thing”
- Choose the graphic and make a change to original
- Name the item according to the script action
- Select slot type and number
- Check layout and set the rules
- Write script code
- Run script and try action with Alt+click

Sample Files

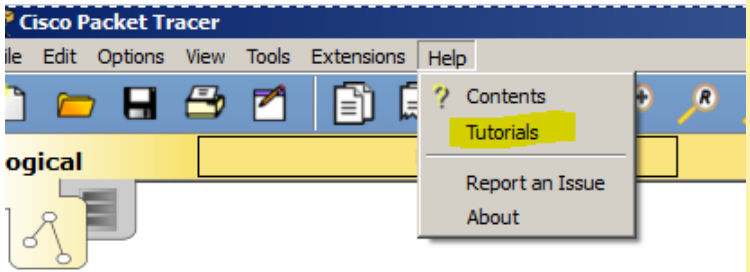
To find the Sample files





Tutorials

Packet Tracer includes a lot of tutorials to help the user to understand new features



14 New 7.0 Features

14-1 Whats New in Packet Tracer 7.0

- Introduce the latest capabilities of Packet Tracer 7.0.

14-2 Actuators, Sensors and Smart Devices

- Explore the new IoT devices.

14-3 Smart Home

- How to create a Smart Home with the new IoT features.

14-4 New Network Devices

- Explore the new devices and protocols in 7.0.

14-5 Home Gateway and Registration Server

- Connect your IoT device to a server for remote control.

14-6 Physical Workspace

- Learn how to use containers, bendpoints, and other physical workspace capabi

14-7 Web Server

- See what you can do with the HTTP server now.

14-8 Thing Editor and Device Manager

- Learn how to create your own custom IoT device.

14-9 Email Client and MCU

- Learn how to use the email client with the MCU.

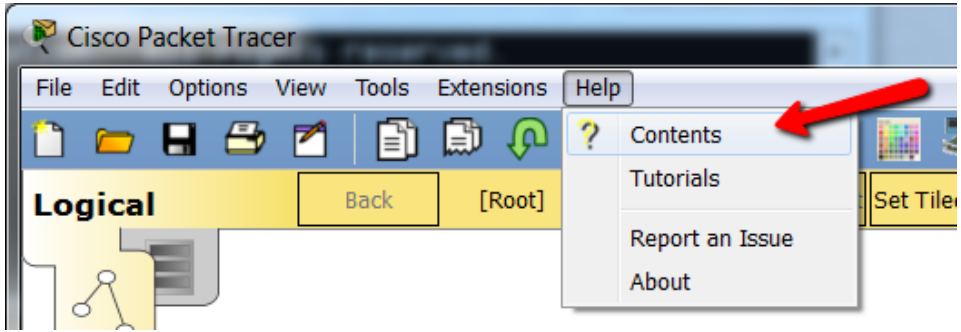
14-10 Environment

- See how the environment affects the sensors.

14-11 Environment Key Frames

- Control the environment variables to create a dynamic world.

Help Contents



JavaScript API

Program Structure and Events

Function	Return Type	Description	Example
setup()	N/A	If defined, this function is called once when the program starts.	`function setup() { pinMode(0, INPUT); }`
loop()	N/A	If defined, this function is called continuously when the program is running. The frequency of the calls depends on the complexity of this function, the number of other devices running programs and their complexity, and the machine's processing power.	`function loop() { Serial.println(digitalRead(0)); }`
cleanUp()	N/A	If defined, this function is called once just before the program stops.	`function cleanUp() { Serial.println("program is stopping."); }`
mouseEvent(pressed, x, y)	N/A	If defined, this function is called when the user clicks and/or moves the mouse on the workspace icon of this device.	`function mouseEvent(pressed, x, y, firstPress) { if (firstPress) doSomething();`

C and C++ Programming Courses

C/C++ Pathway

C++

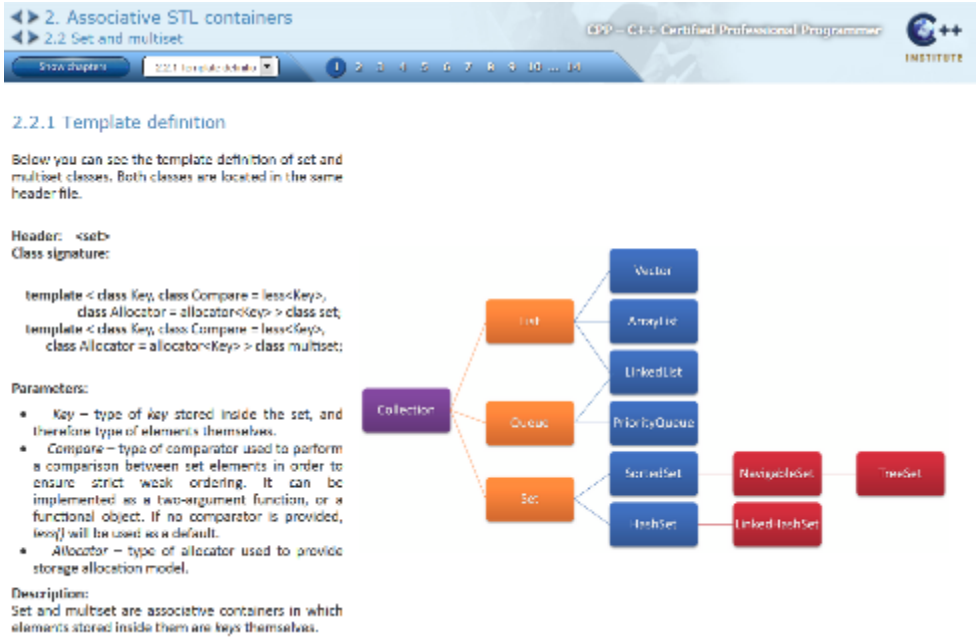
C

CPP: Programming in C++ (LA)

- Curriculum developed by C++ Institute
- Course free of charge to students, instructors and academies
- Instructor-led online curriculum
- Aligns with C++ Certified Professional Programmer (CPP) certification
- Targeted to entry-level to mid IT professionals
- Pre-requisites: CPA course or equivalent C++ knowledge required

CPP: Programming in C++
Course Design

- Easy-to-navigate graphical user interface
- 9 chapters, with quiz and exam per chapter
- Welcome and exit surveys
- 60 practice labs
- 1 final practice and 1 final exam
- Certificate of Completion (Statement of Achievement)
- Certification Exam Voucher (51% discount)



Instructor training requirements

- No instructor training or skill test is required to teach the C++ Institute courses.
- Recommendations
  - Academic institutions provide quality instructors and facilities
  - Instructors study the course material
  - Take the CPP – C++ Certified Professional Programmer certification prior to teaching the class so that they become familiar with the exam structure and know how to prepare their students for it.

Cybersecurity Essentials

Cybersecurity Essentials

Course Overview

Cybersecurity Essentials covers foundational knowledge and essential skills for all cybersecurity domains including information security, systems security, network security, ethics and laws, and defense and mitigation techniques used in protecting businesses.

Benefits

This course is recommended for students planning to study any CCNA certification. It provides foundational security skills for entry-level networking and security roles.

Learning Components

- 8 chapters
- 34 interactive activities, 10 Cisco Packet Tracer Activities, 12 hands-on labs that reinforce learning
- 8 chapter quizzes, 1 final exam
- Links to related resources

Features

Target Audience: Secondary and 2-year college vocational students

Prerequisites: Introduction to Cybersecurity

Instructor Training Required: No

Languages: English

Course Delivery: Instructor-led and Self-paced

Estimated Time to Complete: 30 hours

Recommended Next Course: CCNA R&S Introduction to Networks

Course Design

- Easy-to-navigate graphical user interface
- 8 chapters with modifiable chapter quiz
- 34 interactive activities
- 10 Cisco Packet Tracer activities, require PT 6.3.x or above
- 12 hands-on labs, only PC required for lab
- 1 dynamic final exam
- 8 chapters containing accessible text and media text videos with closed captioning.
- Available in English
- Certificate of Completion

Instructor Requirements

Release in German
~August 2017

- All Instructors are recommended to have CCNA-level networking (CCNA R&S), or security (CCNA Security, CISSP, Security+) knowledge and skills
- Instructor training is optional, but recommended for new instructors. Training options:
  - Take Introduction to Cybersecurity 2.0 and Cybersecurity Essentials self-paced courses
  - Take an instructor training delivered by Instructor Training Centers (ITCs)
- 15-hour training: in-person, blended, or remote delivery formats

Networking Essentials

Networking Essentials

Course Overview

Networking Essentials teaches networking based on environments students may encounter in their daily lives including small office and home office (SOHO) networking. This course provides hands-on learning using real equipment and Packet Tracer simulation activities.

Benefits

This course teaches the skills needed to obtain entry-level SOHO network installer jobs. It also helps students develop some of the skills needed to become network technicians, cable installers, and help desk technicians.

Networking Essentials prepares students for continuing with the CCNA R&S curriculum. Students studying other non-IT fields would also find this course a useful introduction to IT and networking.

Learning Components

- 9 chapters
- 21 hands-on labs
- 17 Cisco Packet Tracer files
- 1 hands on skill assessment
- 9 chapter exams, 1 checkpoint exam, 1 practice final exam, 1 final exam

Features

Target Audience: Secondary and 2-year college vocational students, college and university students studying non-IT fields

Prerequisites: None

Instructor Training Required: Yes

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 70 hours

Recommended Next Course: CCNA R&S Introduction to Networks, Introduction to IoT

Instructor Training Requirements

- Grant access to all existing CCNA 1 instructors, i.e. existing CCNA instructors eligible to teach CCNA ITN do not need to take instructor training
- Other non-CCNA instructors need to join and pass instructor training conducted by ITC before teaching this course
- All CCNA instructor trainers in ITC will be allowed to teach this course
- Trainees can choose to take this course or take CCNA ITN course to get access for teaching this course.
- Remote instructor training need to be approved by the TFE team on case by case basis.
- Fast Track instructor training should be available for the trainees that meet **one** of following prerequisites:
  - Trainee has valid CCENT or higher certification (CCNA, CCNP, CCIE)
  - Formal evidence of one year of recent or current industry experience in networking design, network operating or system integration. (follow the similar requirement as ITE fast track) A letter, on company letterhead and signed by a company official, stating that the candidate has worked in this technical field for the required time.
  - Formal evidence of having taught at least two classes* in the subject area (follow the similar requirement as ITE fast track) A letter, on school letterhead and signed by a school official, stating that the candidate has taught the required number of classes.
- *Two classes are defined as the same class twice; or two similar classes taught once each

Equipment Requirements

Release in German
~August 2017

Lab Hardware Requirements

- 2 PCs running Windows 10
- 1 Wireless NIC or USB dongle
- 1 CISCO1941/K9 Integrated Services Router Generation 2 (ISR-G2)
- 1 WS-C2960+24TC-L Cisco Catalyst switch
- 1 Wireless Router
- A smartphone or tablet as a host device
- Assorted Ethernet cables
- RJ-45 connectors
- RJ-45 crimping tool
- Wire cutter
- Wire stripper
- Ethernet cable tester (optional)
- DB-9 to RJ-45 console cable with DB-9 to USB adapter if necessary
- Mini-USB to USB-A cable

Lab Software Requirements

- Tera Term

CCNA R&S 6.0 Updates

CCNA R&S 6.0 ITN and RSE Course Release Timeline

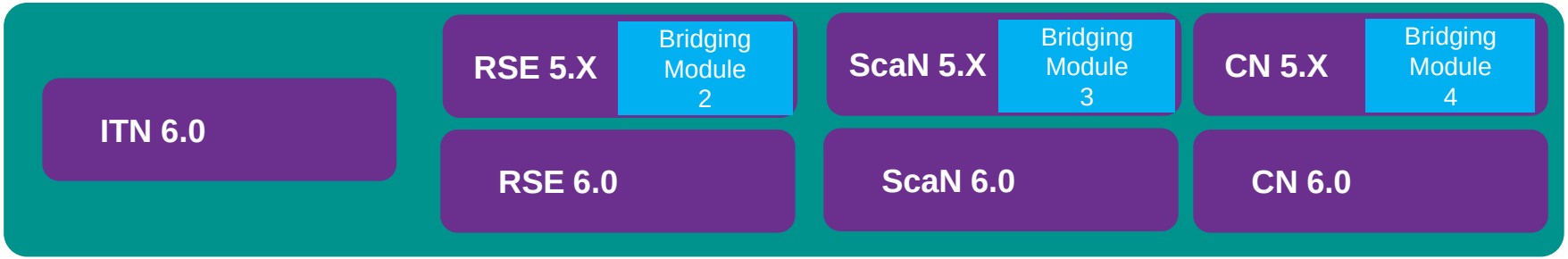
Course	Language	Availability
Introduction to Networks (ITN) v6.0	English French and Spanish, Arabic, Chinese, Portuguese, Russian, and **German**	Released
Routing and Switching Essentials (RSE) v6.0	English, French, Spanish	
Routing and Switching Essentials (RSE) v6.0	Arabic, Chinese, Portuguese, and Russian	 Release in German ~August 2017

CCNA R&S 6.0
ScaN & CN Course Release Timeline

Course	Language	Availability
Scaling Networks (ScaN) v6.0	English	July 2017
Connecting Networks (CN) v6.0	English	July 2017
ScaN and CN v6.0	Arabic, Chinese, French, Portuguese, Spanish and Russian	TBD

Teaching Strategies

- Adopt ITN when released and adopt RSE 6.0 based on when ScaN and CN are released to avoid missing content



- Missed topics when adopting RSE 6.0 with ScaN and CN taught before release of 6.0

Topics moved from RSE 5.X to ScaN 6.0
- Dynamic Routing (additional depth)
- Single-Area OSPF
- DTP
- SVI Inter-VLAN Routing
- Inter-VLAN Routing Troubleshoot

Topics moved from RSE 5.X to CN 6.0
- LAN Security
- Extended IPv4 ACLs
- All IPv6 ACLs

Certification and Vouchers

New Certification Exam Pricing

- Localized exam pricing, select your country at *http://www.vue.com/vouchers/pricelist/cisco.asp#prices*.

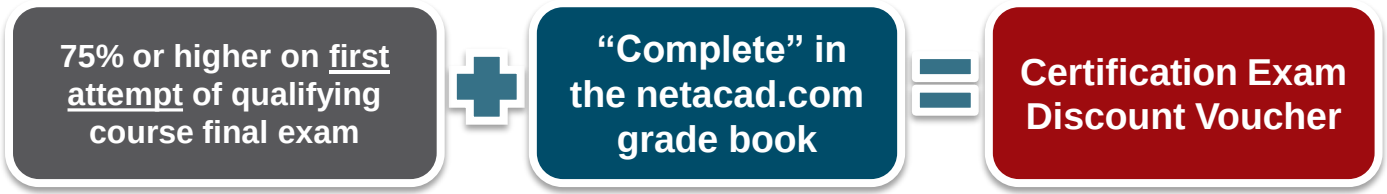
100-xxx & 200-105 ICND exams	USD	165
200-xxx Associate Level exams (excludes 200-105/125)	USD	300
200-125 CCNA Routing and Switching exam	USD	325
210-xxx Associate Level - Advanced Technology exams	USD	300
300-xxx Professional Level exams	USD	300

Discount Voucher Eligibility Criteria

Discount Vouchers are available for the following certification exams:

ICND1 (61.5%)
ICND2 (61.5%)
CCNA Composite (61.5%)
CCNA Security IINS (58.3% discount)

To qualify for a discount voucher students must meet the following criteria:



Newly qualified instructors and instructor trainers may also qualify for a discount voucher at a value of 70% and 80% discount respectively.

Vouchers

Exam	Course	Criteria	Student discount	Instructor discount
CompTIA A+	IT Essentials	75% or higher on first attempt of final exam AND "Complete" in the gradebook	No voucher	No voucher
ICND1	CCNA 2 (RSE)		61.5 %	No voucher
ICND2	CCNA 4 (CN)		61.5 %	No voucher
CCNA "Composite"	CCNA 4 (CN)		61.5 %	70 %
CCNA Security IINS	CCNA Security		58.3 %	70 %
CCNP	CCNP		No voucher	No voucher
LPI: Linux Essentials	Linux Essentials	"Complete" in the gradebook	20 %	No voucher
LPIC 101	Linux I		20 %	No voucher
LPIC 102	Linux II		20 %	No voucher
CPA: C++ Certified Associate Programmer	Programming Essentials in C++	Take all chapter assessments and the mock test AND 70% or higher on final test	51 %	100 %*
CLA: C Programming Language Certified Associate	Programming Essentials in C		51 %	100 %*

Instructor Professional Development

Global IPD Week March 6 – 10, 2017

- **Program Updates**
  - Catch up on the latest strategies and products from Cisco Networking Academy!
- **Technical Session Topics**
  - Understanding and Troubleshooting BGP neighbors
  - Packet Tracer 7 and the Real World
  - Digitize your Classroom with DevNet
  - Data Center Evolution
  - IoT and Digitization: The 360 view with Arduino and Raspberry Pi
  - An Introduction to Cisco Meraki
- **Instructor Forum**
  - IoT Hackathons

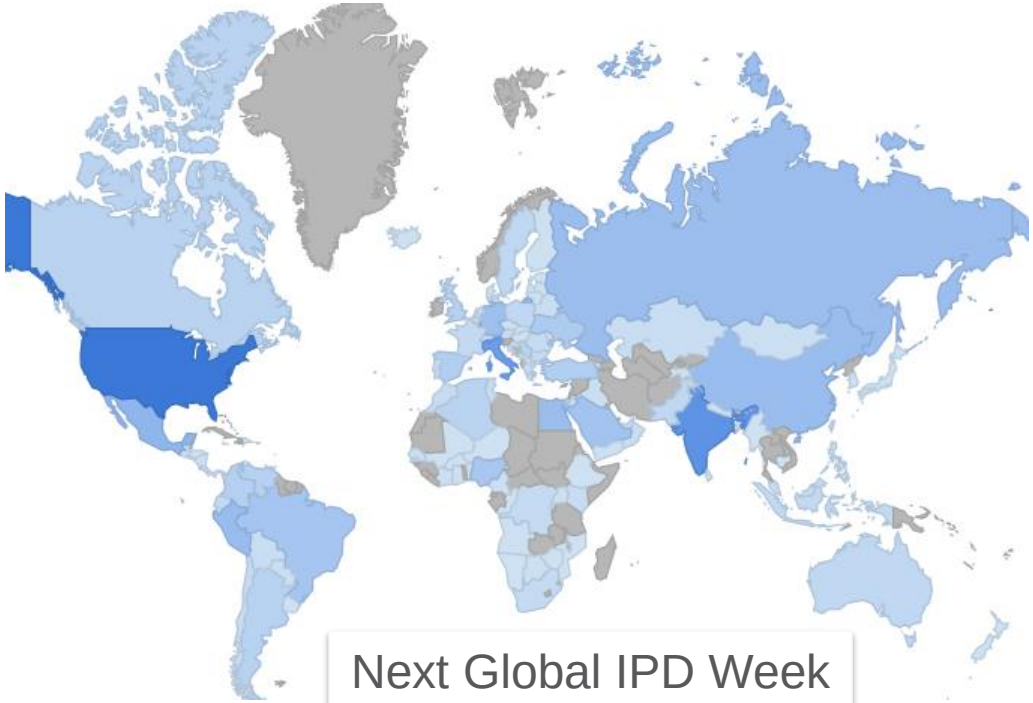
Global IPD Week Course Enrollment Link - http://cs.co/GIPD17

Participation

Global: 1353 persons, 3851 sessions
Germany: 37 persons, 86 sessions

Recordings Available –
http://cs.co/GIPD17

Thema	Zeit und Datum	Registrieren
Programm Updates Informieren Sie sich über die neuesten Strategien und Produkte von Cisco Networking Academy Sprecher: Uwe Starke	**Datum: 7 März** **Zeit: 17:00 Berin**	
Instructor Forum Hackathon Erfahrungen und Empfehlungen (Diskussionsrunde) Sprecher: Monika Stausberg, David Brett, Martin Schleyer, Ana Schachschneider	**Datum: 8 März** **Zeit: 17:00 Berlin**	
Technische Sitzung 1 Programming C++ Sprecher: Claus Bauer	**Datum: 9 März** **Zeit: 17:00 Berlin**	Demo Only
Technische Sitzung 2 Linux Kurse Sprecher: Reiner Brandt, Kai Schell	**Datum: 10 März** **Zeit: 11:00 Berlin**	



Next Global IPD Week
May 8-12th 2017


CISCO

IoT Fundamentals Course Summary

	Course Overview	Benefits	
Connecting Things	Students learn how to securely interconnect sensors, actuators, microcontrollers, single-board computers, and cloud services over IP networks to create an end-to-end IoT system.	Students will develop multi-disciplinary skillsets required to prototype an IoT solution for a specific business case with a strong focus on the security considerations for emerging technologies.	Course Delivery: Instructor-led Estimated Time to Complete: 40-50 hours
Big Data & Analytics	Students will learn how to use Python data libraries to create a pipeline to acquire, transform and visualize data collected from IoT sensors and machines.	The transformative element of any IoT system is the data that can be collected from it. Thus the ability to extract data and using data analytics techniques to gain insights increases employability.	Course Delivery: Instructor-led Estimated Time to Complete: 40-50 hours
Hackathon Playbook	The Hackathon Playbook is a comprehensive framework of tools and templates to prepare and run a Hackathon as a result of best practices and lessons-learned collected from the global execution of IoT Hackathons within Networking Academy and by other organizers.	Student reinforce and deepen their multidisciplinary IoT and data skills by defining, designing, prototyping and presenting an IoT solution to a panel of industry experts and peers.	Course Delivery: Instructor-led Estimated Time to Complete: 20-30 hours

IoT Fundamentals: Connecting Things

Course Overview

Students learn how to securely interconnect sensors, actuators, microcontrollers, single-board computers, and cloud services over IP networks to create an end-to-end IoT system.

Benefits

Students will develop multi-disciplinary skillsets required to prototype an IoT solution for a specific business case with a strong focus on the security considerations for emerging technologies.

Learning Components

- Understand and explain the concepts, opportunities and challenges of digital transformation using IoT.
- Interconnect sensors/actuators, microcontrollers (Arduino), Single Board Computers (Raspberry Pi) and cloud services (Cisco Spark restful API) to create an end-to-end IoT system.
- Understand the relevant aspects of cybersecurity and privacy for an IoT solution.
- Understand how digitalization is changing vertical markets such as manufacturing, energy, and smart cars.
- Use simulation tools (Packet Tracer) to create end-to-end IoT system.

Features

Target Audience: Secondary, Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: Basic programming, networking and electronics

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 40-50 hours

Recommended Next Course: IoT Fundamentals: Big Data & Analytics or Hackathon Playbook

Instructor Training: Required

Connecting Things Course Outline

Chapter	Chapter Titles	Summary Description
1	Things and Connections	Understand the building blocks, the interconnections and the information flow of an IoT System.
2	Sensors, Actuators and microcontrollers	Use sensors and an Arduino microcontroller to read data from physical world and control actuators.
3	Software is Everywhere	Use Python to program a Single Board Computer (Raspberry PI) to perform more complex embedded program.
4	Fog Networks and Cloud Services	Learn the principal IoT Networking Protocols. Learn how an IoT system distributes computing between Fog and Cloud networks. Learn how to interconnect systems using Restful APIs.
5	Industrial IoT Applications	Learn how IoT technologies are applied in diverse vertical markets: Healthcare, Smart Cities, Smart Grid, Manufacturing.
6	Create an IoT Solution	End-to-End case study on how to create an IoT Prototype.

IoT Fundamentals: Big Data & Analytics

Course Overview

Students will learn how to use Python data libraries to create a pipeline to acquire, transform and visualize data collected from IoT sensors and machines.

Benefits

The transformative element of any IoT system is the data that can be collected from it. Thus the ability to extract data and using data analytics techniques to gain insights increases employability.

Learning Components

- Use Python to read data from sensors and store data in a SQL data base.
- Use Python Data Analysis library to clean, manipulate, integrate data sets.
- Use Python Visualization Libraries to visualize real-time data end explore acquired data sets.
- Explain the fundamental principles of a modern scalable Big Data platforms like Hadoop.
- Use storytelling to present the insights gained from extracted data.

Features

Target Audience: Secondary, Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: IoT Fundamentals: Connecting Things

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 40-50 hours

Recommended Next Course: IoT Fundamentals: Hackathon Playbook

Instructor Training: Required

Big Data & Analytics Course Outline

Chapter	Big Data & Analytics	Summary Description
1	Data and the Internet of Things	Understand the concepts of Big Data and Analytics, and the role of Big Data in IoT systems.
2	Fundamentals of Data Analysis	Learn the basics of descriptive statistics, the practical aspects in acquiring data from a sensor and how to create visual representations of the data.
3	Exploratory Data Analysis	Explore data using visualization to extract information and create hypotheses.
4	Introduction to Machine Learning	Learn about predictive analytics, the supervised and unsupervised approaches to machine learning and how to apply models to make predictions from the data.
5	Storytelling with Data	Learn how to transform analytics results into a clear and convincing narrative and visual communication.
6	Introduction to Data Center & Data Engineering	Learn the basic principles behind the most important scalable solutions for Big Data such as Apache Hadoop and the related ecosystem of technologies.

IoT Fundamentals: Hackathon Playbook

Course Overview

The Hackathon Playbook is a comprehensive framework of tools and templates to prepare and run a Hackathon as a result of best practices and lessons-learned collected from the global execution of IoT Hackathons within Networking Academy and by other organizers.

Benefits

Student reinforce and deepen their multidisciplinary IoT and data skills by defining, designing, prototyping and presenting an IoT solution to a panel of industry experts and peers.

Learning Components

- Inspiration: understand, select and present the problem to be solved to recruit fellow partners.
- Ideation: invent a concept that doesn't already exist to solve a social issue. Learn how to present the solution to experts who will mentor students.
- Prototyping: create a prototyping action plan, including objects and visuals to illustrate their plan and will help an expert understand the concept and prototyping needs.
- Testing: present the concept and validate the prototype with a second expert, including user experience and enhancements.
- Presentation: present the solution and demo the prototypes to an expert panel.

Features

Target Audience: Secondary, Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: IoT Fundamentals: Connecting Things and/or Big Data and Analytics

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 20-30 hours

Recommended Next Course: any Career-Ready offering from Cisco or an industry IoT training program

Instructor Training: Required

Welcome to the Hackathon Playbook course!

This course contains all of the information needed for facilitators and students to conduct a Hackathon.

Click here to start