

教育部行動寬頻尖端技術跨校教學聯盟  
行動寬頻網路與應用-行動智慧聯網聯盟中心計畫

「物聯網應用實作」短期課程

- 一、 日期：105 年 01 月 19 日(二)~105 年 01 月 20 日(三)
- 二、 地點：交通大學光復校區電子資訊研究大樓 201 室
- 三、 師資：Dr. Kevin W. Lu, Stevens Institute of Technology
- 四、 課程說明：This two-day course takes a hands-on approach to the Internet of Things (IoT), including both physical and logical design practices on Raspberry Pi devices with native and Web services in Python code. It consists of eight lessons each in 85 minutes as described below. Upon completing this course, participants should be able to understand IoT architecture, building blocks, use cases, and design steps through the working prototype for IoT services with data collection and analysis.
- 五、 課程安排：

01 月 19 日（星期二）	
時間	活動內容
08:30-09:00	報到
09:00-10:25	<b>Lesson 1: Overview</b> IoT definition, architecture, value chain, startups, alliances, standards, use cases, system complexity levels, protocols, application programming interfaces (APIs), cloud computing, design steps, and privacy management
10:35-12:00	<b>Lesson 2: Raspberry Pi</b> New out of box software (NOOBS), commonly used commands, configuration tool, and sensor/communication modules using universal serial bus (USB), camera serial interface (CSI), and general-purpose input/output (GPIO), including inter-integrated circuit (I2C) synchronous interface, serial peripheral interface (SPI), default serial console, and universal asynchronous receiver/transmitter (UART)

13:00-14:25	<b>Lesson 3: Python</b> Key characteristics, Python 2/3 comparisons, integrated development environment (IDE), date/time, location, send email, and examples
14:35-16:00	<b>Lesson 4: Django</b> Request and response, representational state transfer (REST), RESTful API, Web services, and Django examples with Google maps, SQLites, and MySQL

01 月 20 日（星期三）	
時間	活動內容
08:30-09:00	報到
09:00-10:25	<b>Lesson 5: Autobahn and Paho</b> Publish and subscribe (pub/sub), Web application messaging protocol (WAMP), message queueing telemetry transport (MQTT), and examples
10:35-12:00	<b>Lesson 6: Alternative Devices</b> Alternative IoT development kit examples using Particle and Tessel with Node.js
13:00-14:25	<b>Lesson 7: Cloud Platforms</b> IoT data feeder examples using cloud platforms such as Beebotte, Carriots, GroveStreams, ThingSpeak, and Google spreadsheets
14:35-16:00	<b>Lesson 8: Data Analysis</b> Characteristics of big (fast) data, diagnosis, prognosis, data visualization, and examples using Numpy, Scipy, scikit-learn, matplotlib, and pandas

六、報名方式：線上報名 <http://goo.gl/W4sxBg>（即日起至 1/10 中午截止或額滿為止）

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