物聯網通訊與安全

第0章 課程介紹
Syllabus

蘇維宗 (Wei-Tsung Su)
suwt@au.edu.tw
564D

歷史版本

版本	說明	日期	負責人
v1.0	初版	2019/02/18	蘇維宗

教學大綱

107學年度下學期

課程規範(Class Protocol v1.1)

- 你(妳)可能獲得加分，如果 ...
  - 在課堂上樂於討論
  - 在網路討論區上樂於討論
  - 其他
- 你(妳)將會獲得扣分，如果 ...
  - 在禁止飲食的教室吃東西
  - 在課堂上大聲喧嘩
- 你(妳)一定會被當掉，如果 ...
  - 考試作弊
  - 曠課超過3次

- You MAY get additional points if you ...
  - have any response in on-site class discussion
  - have any response in web-based class discussion board
  - others
- You WILL lose additional points if you ...
  - eat in no-food classroom
  - talk loudly
- You MUST be failed if you
  - cheat in any exams
  - absent more than 3 times

課程目標

本課程目標為介紹物聯網的**網路通訊**與**資訊安全**技術。

除了學習物聯網通訊協定與資訊安全的基礎原理之外，必須透過實際操作完成物聯網相關實驗。

另外，同學也必須透過閱讀並報告最新的相關研究論文與世界接軌。

評分方式

期中考試：20%

期末作業：40%

口頭報告：30%

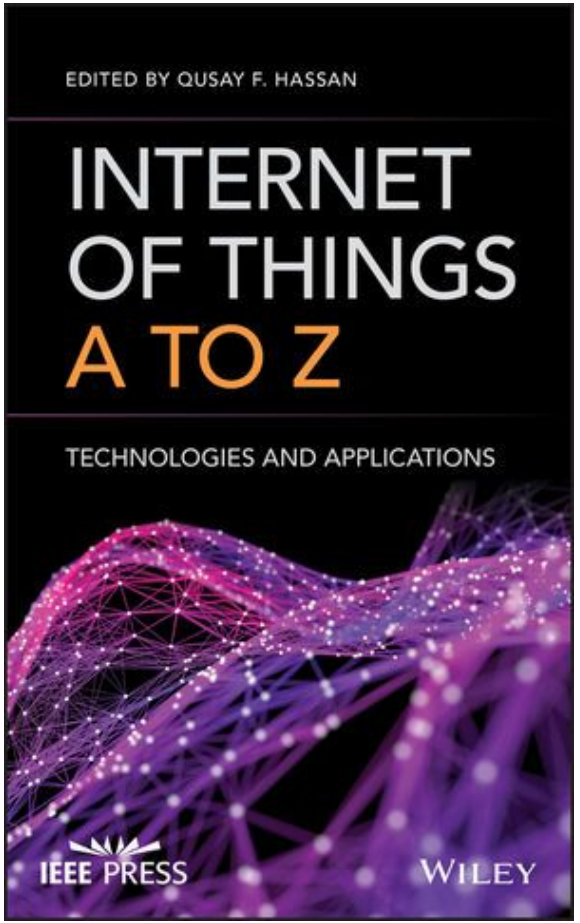
出席成績：10%

教科書

Internet of Things A to Z: Technologies and Applications
Wiley-IEEE Press

Qusay F. Hassan (Editor)

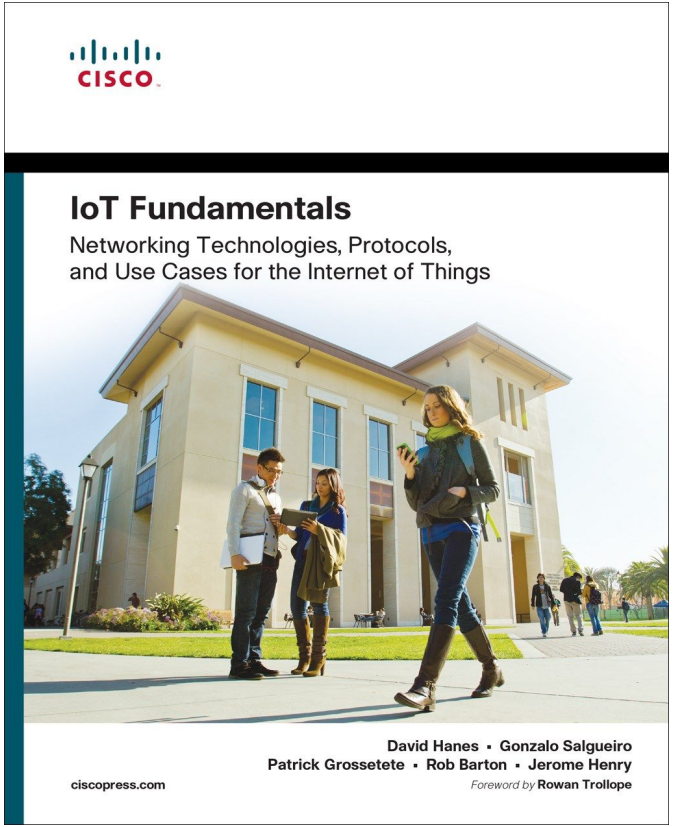
PS. This is free e-book in library.



参考書

IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things
Cisco Press

Robert Barton, Patrick Grossetete, David Hanes, Jerome Henry, Gonzalo Salgueiro



實作部分

物聯網裝置

- MQTT通訊協定(Eclipse Paho)
- MQTT End-to-End Security (Beebit)

物聯網平台

- Google IoT Core

物聯網安全

- Beebit Enhancement

背景知識

Linux (請準備一個Linux開發環境或，亦可使用虛擬機或Docker)

C, Python

GitHub (申請GitHub帳號)

...

Selected Papers (Keywords: IoT, Blockchain)

1. Christidis, K. and Devetsikiotis, M. (2016) Blockchains and smart contracts for the Internet of Things. IEEE Access, 4, 2292–2303.
2. Conoscenti, M., Vetro, A., and De Martin, J. C. (2016) Blockchain for the Internet of Things: a systematic literature review. Proceedings of the 13th International Conference of Computer Systems and Applications.
3. Dorri, A., Kanhere, S. S., and Jurdak, R. (2016) Blockchain in Internet of Things: Challenges and Solutions. Available at https://arxiv.org/ftp/arxiv/papers/1608/1608.05187.pdf
4. Dorri, A., Kanhere, S. S., Jurdak, R., and Gauravaram, P. (2017) Blockchain for IoT security and privacy: the case study of a smart home. Proceedings of the International Conference on Pervasive Computing and Communications Workshops.
5. Dorri, A., Kanhere, S. S., and Jurdak, R. (2017) Towards an optimized BlockChain for IoT. Proceedings of the 2017 IEE/ACM Second International Conference on Internet-of-Things Design and Implementation.

Selected Papers (Keywords: IoT, Blockchain)

6. Huh, S., Cho, S., and Kim, S. (2017) Managing IoT devices using Blockchain platform. Proceedings of the 19th International Conference on Advanced Communication Technology.
7. Kolias, K., Stavrou, A., Bojanova, I., Voas, J., and Grance, T. (2016) Leveraging Blockchain-based protocols in IoT systems. NIST National Institute of Standards and Technology. Available at http://csrc.nist.gov/groups/SMA/ispab/
8. Lee, B. and Lee, J.-H. (2016) Blockchain-based secure firmware update for embedded devices in an Internet of Things environment. The Journal of Supercomputing.
9. Lombardo, H. (2016) Blockchain serves as tool for human, product and IoT device identity validation. Available at https://inform.tmforum.org/nfv-ittransformation/2016/11/blockchain-serves-tool-human-product-iot-deviceidentity-validation/

Q & A

Computer History Museum, Mt. View, CA