### 106 學年第 1 學期 雲端計算 Cloud Computing 課程綱要

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **課程名稱：（中文）雲端計算**  　　　　　（英文）Cloud Computing | | | | 開課單位 | 網工所 | | 永久課號 | IOE5063 | | 授課教師： 王國禎 | | | | | | | 學分數 | 3 | 必/選修 | 選修 | 開課年級 | \* | | 先修科目或先備能力：  計算機網路概論 Introduction to Computer Networks 計算機組織 Computer Organization | | | | | | | 課程概述與目標：  雲端計算廣義來講指的是基於網際網路的計算。使用者透過網際網路視需要存取在雲端的(虛擬)資源(計算、記憶體、網路、硬碟，軟體及資料等)。本課程將探討雲端計算環境所牽涉到的原理，機制及架構，也將討論雲端計算與大數據、物聯網、軟體定義網路及網路功能虛擬化的緊密關係及相關議題。雲端計算與大數據的結合，將促使人工智慧快速發展，並從而使雲端系統更有智慧。本課程採理論與實務並重，透過四個動手做的實驗(作業)，同學可以獲得雲端計算的實務經驗，此有助於對雲端技術的深入的瞭解。  Cloud computing is an internet-based computing that users can access cloud resources (CPU, memory, network, storage, applications/services, and data, etc.) on demand. This course aims at studying principles, mechanisms, and architecture involved in cloud computing environments. The close relationships and associated issues among cloud computing, bid data, IoT (internet of things), SDN (software defined networks), and NFV (network function virtualization) will be discussed. Combining cloud computing and big data will bring rapid development of AI (artificial intelligence) and further make clouds more intelligent. This course emphasizes both theory and practice of cloud computing. By four hands-on experiments (homework), students have the opportunity to gain practical experience of cloud computing and benefit from deep understanding of cloud computing techniques. | | | | | | | 教科書（請註明書名、作者、出版社、出版年等資訊） | 參考教材 Course Materials  1. "Cloud Computing for Machine Learning and Cognitive Applications, Kai Hwang, The MIT Press, 2017. 2. "Big-Data Analytics for Cloud, IoT, Cognitive Computing, Kai Hwang and Min Chen, Wiley, 2017. 3. Selected IEEE/ACM journal/conference papers. | | | | | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | 課程大綱 | | 分配時數 | | | | 備註 | | 單元主題 | 內容綱要 | 講授 | 示範 | 習作 | 其他 | |  |  |  |  |  |  |  | |
| |  | | --- | | **教學要點概述：** | | 1.學期作業、考試、評量 評分方式 Grading Policy  作業 Homework 30% 期末考 Final Exam 40% 期末創意專題報告 Final Creative Project 30%  課程參與 Class Participation 10% (extra, optional) | | 2.教學方法及教學相關配合事項(如助教、網站或圖書及資料庫等) http://mbl.cs.nctu.edu.tw | |
| |  |  |  |  | | --- | --- | --- | --- | | 師生晤談 | 排定時間 | 地點 | 連絡方式 | | 1 GH | EC 332A | kwang@cs.nctu.edu.tw or 5131363 (31363) | |
| |  |  |  | | --- | --- | --- | | 每週進度表 | | | | 週次 | 上課日期 | 課程進度、內容、主題 | | 1 |  | Chapter 1: Introduction to Cloud Computing | | 2 |  | Chapter 1: Introduction to Cloud Computing (cont.) | | 3 |  | Chapter 2: Infrastructure as a Service (IaaS) | | 4 |  | Chapter 2: Infrastructure as a Service (IaaS) (cont.) | | 5 |  | Chapter 3: Platform as a Service (PaaS) | | 6 |  | Chapter 3: Platform as a Service (PaaS) (cont.) | | 7 |  | Chapter 4: Cloud Monitoring and Management | | 8 |  | Chapter 4: Cloud Monitoring and Management (cont.) | | 9 |  | Chapter 5: Cloud QoS and Resource Allocation | | 10 |  | Chapter 5: Cloud QoS and Resource Management & Allocation (cont.) | | 11 |  | Chapter 6: Mobile Cloud Computing | | 12 |  | Chapter 7: Cloud Security | | 13 |  | Chapter 8: Cloud Networking and Software Defined Networking (SDN) | | 14 |  | Chapter 9: Big Data Analytics and Artificial Intelligence | | 15 |  | Chapter 10: Cloud Services and Case Studies | | 16 |  | Chapter 11: Cloud Computing Perspective | | 17 |  | Presentation | | 18 |  | Final exam | |

**※ 請同學遵守智慧財產權觀念及勿使用不法影印教科書。**

**備註：**

### 其他欄包含參訪、專題演講等活動。

### 請同學遵守智慧財產權觀念及勿使用不法影印教科書。

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