

## Cloud Computing and Cyber Security (雲端計算與資安)

Instructor: Sheng-De Wang, [sdwang@ntu.edu.tw](mailto:sdwang@ntu.edu.tw)

### Objective:

Students will learn the concepts and techniques of cloud computing and security. Also students will have the ability to write/deploy cloud services and will the security concepts and practices. The focus is on data processing platforms and security on the cloud. Data processing platforms include Map/Reduce, Storm, and Spark. Security topics includes Cloud Data Security, Cloud Platform and Infrastructure Security, and Cloud Application Security.

### Outline:

Introduction to Cloud computing and Cloud Security

Infrastructure-as-a-Service Model

Virtualization Technologies, Container/Docker Technologies ,OpenStack

Data Processing Platform

Apache Hadoop, Map Reduce, Storm, Spark

Hbase/Hive

Session Layer Protocols for IoT devices

MQTT, AMQP, CoAP, DDS

Web Application Developments

RESTful web services

Web Application Development Frameworks

Backend as a service: Firebase

Architectural Concepts & Design Requirements\

Cloud Data Security

Cloud Platform & Infrastructure Security

Cloud Application Security

Presentation of Selected Topics

Term Project

Prerequisite: Object-Oriented Programming, Java Programming

Grading: Homeworks 30%, Midterm exam 30%, Final Project 30%, Presentation and discussions 10%

Ref: Internet Resources; Papers and Lecture notes