**Cloud Computing**

**Course Syllabus**

1. **Basic Information**

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| Course Code： | Course Title：Cloud Computing |
| Department：School of Computer Science | Students：undergraduates, grade 3 |
| Credit Points：3 | Hours：48 |
| Teaching Staff (Instructor) | Name：Weiping Zhu | Email：wpzhu@whu.edu.cn |
| Office：E314 | Tel：17786500734 |
| Course Type： Major Elective Course |
| Prerequisites：Advanced language programming |

1. **Brief Introduction（less than 500 words）**

Cloud computing in an important implementation of high performance and high transaction computing. This course will teach important aspects of cloud computing including its history and current status, key techniques, and typical applications, and requires the students to implement all importance parts of the course. This course covers platform level techniques including computing model, architecture model, deployment model, resources virtualization and scheduling, and also the application level techniques including distributed storage, Map/Reduce, and computation partition. The students are required to use cloud platform and tools to build a real application. After this course, the students will have solid basic knowledge of cloud computing, and can build a typical software applications related to cloud computing.

1. **Content and Schedule**

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| Lecture Topic | Contact Hours |
| Overview of cloud computing  | 3 |
| System architecture of cloud computing | 3 |
| Computer clusters | 3 |
| Virtualization | 3 |
| Computation partitioning | 3 |
| MapReduce | 6 |
| Service-oriented architectures | 3 |
| Core algorithms of cloud computing | 6 |
| Cloud computing and IOT | 3 |
| Cloud computing security | 3 |
| Cloud based web application development   | 6 |
| Docker and K8S development  | 6 |

1. **Assessment**

Class performance (20%), after class assignments (30%), and course report (50%)

1. **Resources and Reference Material**

Textbook:

[1] Cloud Computing , Nayan B. Ruparelia, The MIT Press, 2023

Reference：

[1] Distributed and Cloud Computing: From Parallel Processing to the Internet of Things, Kai Hwang, Geoffrey Fox, Jack Dongarra, [O'Reilly](https://www.baidu.com/link?url=dhFjz3SgAlpLlnGLSnrYktjY2NwBxMO5dTN2sLy32tCBNHa2NrMn6wIrWcOFQ-i8kbScQ_RjXfYPxqv6aaRQN_&wd=&eqid=ccc9b88d0001d25d000000035b68014c), 2011