附件2

**武汉大学全英文授课课程信息表（英文版）**

**Wuhan University Course Outline**

**School/Department: International School of Software**

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| **Course Name (Chinese)\*** | 操作系统原理 |
| **Course Name (English)\*** | Operating System Principles |
| **Course Code\*** | 0800501 |
| **Availability\*** | Semester 4 |
| **Course Hours\*** | 54 |
| **Credits\*** | 3 |
| **Course Description\*** | This course is a specialized basic course for software engineering majors. It mainly introduce the basic concepts, principles, models and algorithms of the operating system. Enable students to understand the functions and implementation processes of an operating system from the point of view of resource management. |
| **Course Objectives/Content\*** | Course Objective:  1. To understand the basic concept, principle and method of operating system;  2. To learn operating system management and control function of the whole computer system and the user interface provided by operating system;  3. To provides the necessary foundation for the studying of subsequent professional courses and being engaged in system software and application software’s design, analysis and improvement work in the future.  Main Contents:  Part 1：Overview  the objectives and role of operating systems; development and characteristics of operating systems; major components of operating systems; operating-system services; user operating-system interface; operating-system structure; operating-system design and implementation  Part 2：Process Management  the basic concepts for process and thread; the control of process; process synchronization and semaphore; classical problems of synchronization; process communication; processor’s scheduling levels and algorithm; the reason of deadlock’s occurrence; deadlock prevention; deadlock avoidance; deadlock detection and removal method;  Part 3: Memory Management  memory management level; continuous memory allocation; paging memory management; segmentation; virtual memory principle; demand paging memory management and page-replacement algorithm; thrashing  Part 4 Storage Management  mass-storage structure; disk storage management; files’ logical structure; physical structure; directory management; file sharing and protection; file system implementation; file storage space management; I/O hardware; application I/O interface; kernel I/O subsystem; I/O control |
| **Teaching Methods** | Lecture and interactive problem solving. |
| **Assessment\*** | Final exam: 50%  Homework: 20%  Quizzes: 20%  Attendance:10% |
| **Textbook(s)** | Abraham Silberschatz, Peter Galvin, Greg Gagne. Operating System Concepts, 7th Edition, China Higher Education Press, 2010 |
| **Reading** | Andrew S Tanenbaum. Modern Operating Systems, 3rd Edition, China Machine Press, 2009  Andrew S Tanenbaum. Operating Systems Design and Implementation, 3rd Edition, Tsinghua University Press, 2008 |
| **Prerequisites** | Data structures, computer organization, and a high level language |
| **Lecturer(s)** | Yang Min |

注：\*为必填。

**武汉大学全英文授课课程信息表（中文版）**

**学院: 国际软件学院**

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| **课程名称（中文）\*** | 操作系统原理 |
| **课程名称（英文）\*** | Operating System Principles |
| **课程代码\*** | 0800501 |
| **授课学期\*** | 第四学期 |
| **学时\*** | 54 |
| **学分\*** | 3 |
| **课程简介\*** | 本课程是软件工程专业的专业基础课，主要讲授操作系统的基本概念、原理、模型与算法。使学生从资源管理的角度领会操作系统的功能和实现过程。 |
| **课程目标、内容\*** | 课程目标：  使学生了解操作系统的基本概念、原理和方法；了解操作系统对整个计算机系统的管理和控制功能以及用户与操作系统的接口；为后继专业课程的学习及今后从事各种系统软件及应用软件的设计、分析和改进等工作提供必要的专业基础。  课程内容：  本课程教学的主要内容包括四个主要模块：  模块一：基本概念和理论  主要包括：操作系统的目标与作用；操作系统的发展历程；操作系统的基本特征；操作系统的功能；操作系统的服务；操作系统的用户接口；操作系统的结构；操作系统的设计与实现  模块二：进程管理  主要包括：进程的基本概念；进程控制；进程同步的基本概念和信号量机制；经典的同步问题；进程通信类型和消息通信的实现方法；线程的概念与应用；处理机调度的类型；常见调度算法；死锁的原因和必要条件；预防死锁的方法；死锁的检测及解除  模块三：内存管理  主要包括：连续分配方式；基本分页存储管理；基本分段存储管理；虚拟存储器的基本概念；请求分页存储管理及页面置换算法；抖动问题  模块四：存储管理  主要包括：大容量存储的层次结构；磁盘存储器管理；文件、文件系统和文件的逻辑结构；外存分配方式；目录管理；文件共享与保护；文件系统的实现；文件存储空间的管理；I/O硬件；应用I/O接口；内核I/O子系统； I/O控制方式 |
| **教学方法** | 课堂教学和交互式问题解决 |
| **考核方式\*** | 期终考试：50%  课后作业：20%  课堂测验：20%  出勤：10% |
| **教材** | 西尔伯查茨(Abraham Silberschatz) , 高尔文(Peter Baer Galvin), 加根(Greg Gagne) 著，操作系统概念 (第七版, 影印版)，高等教育出版社，2010年 |
| **推荐阅读** | Andrew S Tanenbaum著, 现代操作系统 (第三版， 影印版），机械工业出版社，2009年  Andrew S Tanenbaum著, 操作系统设计与实现 (第三版， 影印版），清华大学出版社，2009年 |
| **先导课程** | 数据结构、计算机组成原理、C++或者Java程序设计 |
| **授课教师** | 杨敏 |

注：\*为必填。