

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	计算机导论 A Introduction to Computer A (本课程的正式名称应为“计算机科学导论 A”) (The formal title of this course should be “Introduction to Computer Science A”)
2.	授课院系 Originating Department	计算机科学与工程系 Department of Computer Science and Technology
3.	课程编号 Course Code	CS101A
4.	课程学分 Credit Value	2
5.	课程类别 Course Type	专业选修课 Major Elective Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	英文 English
8.	授课教师、所属学系、联系方式 Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	程京德, 教学教授, 计算机科学与工程系, chengjd@sustech.edu.cn Jingde Cheng, Teaching Professor, Department of Computer Science and Technology, chengjd@sustech.edu.cn
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	沈昀, 教学实验员, 计算机科学与工程系, sheny@mail.sustech.edu.cn Yun Shen, Teaching laboratory technician, Department of Computer Science and Engineering, sheny@mail.sustech.edu.cn
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	

11. 授课方式 Delivery Method	讲授	习题/辅导/讨论	实验/实习	其它(请具体注明)	总学时
	Lectures	Tutorials	Lab/Practical	Other (Please specify)	Total
学时数 Credit Hours	32				32
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 Nothing				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	计算机系全部课程 All courses of CS department				
14. 其它要求修读本课程的学系 Cross-listing Dept.					

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程的正式名称应为“计算机科学导论 A”。“计算机科学导论 A”课程给予有志于以计算机科学为专业方向的一年级学生一个有关计算机科学之基础及其重要领域的介绍。其教学目标为：通过讲授计算的基础概念和计算机系统的基本工作原理，让学生了解计算机的计算能力和用计算机解决问题时的必要工作；并且通过介绍计算机科学的各个重要领域，让学生知晓计算机科学的各种应用以及计算机科学的前沿研究方向和挑战性问题。

The formal title of this course should be “Introduction to Computer Science A”. This course gives first-year students interested in computer science as their major an introduction to the basis of computer science and its important fields. The teaching objectives of the course are: to teach students the fundamental concepts of computation and the basic working principles of computer systems, so that they can understand the computational ability of computers and necessary work of solving problems with computers; to let students know various applications of computer science as well as the frontier research directions and challenging problems in the current computer science by introducing its various important fields.

16. 预达学习成果 Learning Outcomes

“计算机科学导论 A”课程预达学习成果为：学生能够理解什么是计算，什么是原理上可计算，什么是实用上可计算，什么是算法，计算机系统的基本工作原理，并且应该了解软件工程、知识工程与人工智能、信息安全性工程等重要领域提供的方法论和工具，以及当前计算机科学的前沿研究方向和挑战性问题。

The learning outcomes of the course are: students can understand what is computation, what is computability in principles, what is computability in practice, what is algorithm, and the basic working principles of computer systems; Students should know methodologies and tools provided by software engineering, knowledge engineering and AI, information security engineering, and other important fields, and the frontier research directions and challenging problems in the current computer science.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

- (1) Computer Science: What Is It and Why Study It?
- (2) Computation: What Is It and Why Study It?
- (3) Computability
- (4) Computational Complexity
- (5) Algorithms
- (6) Data, Information, and Knowledge, and Their Representations
- (7) Data Storage
- (8) Computer Architecture
- (9) Data Manipulation in Computer Systems
- (10) Programming Languages and Compilers
- (11) Operating Systems
- (12) System Software and Application Software
- (13) Software Engineering
- (14) Knowledge Engineering and Artificial Intelligence
- (15) Information Security Engineering
- (16) Other Important Fields

Southern University
of Science and
Technology

18. 教材及其它参考资料 **Textbook and Supplementary Readings**

- J. G. Brookshear, "Computer Science: An Overview," Addison-Wesley, 2011 (11th Edition), 2014 (12th Edition).
- M. Sipser, "Introduction to the Theory of Computation," Cengage Learning, 2013 (3rd Edition).
- N. Dale and J. Lewis, "Computer Science: Illuminated," Jones and Bartlett Learning, 2016 (6th Edition).
- T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, "Introduction to Algorithms," 2009 (3rd Edition).
- R. E. Bryant and D. R. O'Hallaron, "Computer Systems: A Programmer's Perspective," Pearson, 2016 (3rd Edition).

课程评估 **ASSESSMENT**

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				

课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		50%		
期中考试 Mid-Term Test				
期末考试 Final Exam		50%		
期末报告 Final Presentation				
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)				

20. 记分方式 **GRADING SYSTEM**

A. 十三级等级制 **Letter Grading**
 B. 二级记分制（通过/不通过） **Pass/Fail Grading**

课程审批 **REVIEW AND APPROVAL**

21. 本课程设置已经过以下责任人/委员会审议通过
This Course has been approved by the following person or committee of authority

