南方科技大学 SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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	工业实习 Industrial practice
2.	授课院系 Originating Department	电子与电气工程系 Department of Electrical and Electronic Engineering
3.	课程编号 Course Code	EE470
4.	课程学分 Credit Value	2
5.	课程类别 Course Type	专业核心课 Major Core Courses
6.	授课学期 Semester	夏季 Summer
7.	授课语言 Teaching Language	中英双语 English & Chinese
8.	授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） Instructor(s), Affiliation& Contact （For team teaching, please list all instructors）	陈霏副教授协调，电子与电气工程系 Associate Professor CHEN Fei, Department of Electrical and Electronic Engineering 南山智园 A7 栋 1104 室 Rm 1104, Building A7, iPark Email: fchen@sustc.edu.cn Tel: 0755-88018554
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA
10.	选课人数限额(可不填) Maximum Enrolment （Optional）	

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other（Please specify）	总学时 Total
学时数 Credit Hours			64		64

12.	先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 NA
13.	后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 NA
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**

工业实习是电子与电气工程系教学过程实践教学环节的重要组成部分，应充分体现专业培养目标中面向实际应用能力的基本要求。尽量让学生接触和熟悉实际工作中的诸多问题，使学生面向社会，接触社会，培养学生获取信息、接受知识、提高分析解决实际问题的能力和处理人际关系的能力。增强学生的职业感和责任感，为学生毕业后顺利走上社会各种工作岗位奠定良好的基础。

Industrial practice is an important part of the curriculum at the Department of Electrical and Electronic Engineering. This course focuses on the fundamental requirements in the practical needs of industry for engineering students. The main goals of this course include providing opportunities for students to learn more about the problems occurred in industry, giving students practical interaction with industrial society, and improving students' abilities in acquiring frontier knowledge, problem-solving and inter-person communication. Via this course, students are expected to build up their professional awareness and responsibility, which will help their career development in the future.

16. **预达学习成果 Learning Outcomes**

通过这门课程的学习，学生能够：

1.获得较全面的与本专业有关的生产实际技能；

2.深入了解相关的设备操作与运行技巧。应用已学知识，分析实际生产中的问题；掌握解决这些问题的有效途径与方法；

3.了解所在实习企业的管理体制及其优点和存在问题，了解本专业技术人员在企业中的职责，增强事业心责任感，增强纪律观念以及职业道德与团队精神。

After completing this course, the students will be able to

1.acquire industrial professional skills related to their academic studies

2.understand the basic operation of devices in industry practice, use knowledge in text-book learning to analyse the problems occurred in industry practice, and know the commonly-used solutions

3.analyze the strength and weaknesses of the companies/institutions where they work as internships, learn the duties of employees in the industry, and improve their responsibility, team-spirit and professional merits needed in industry

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.)

工业实习的实习内容与方法，由实习单位与指导老师共同研究决定，应体现课程知识内容的应用与实践。具体实习内容可以包括但不限于：

1.通信

分子通信、纳米通信、纳米物联网、纳米传感网、生物可溶性微纳米系统、大规模多天线系统、异构社交网络、多层无线系统资源调度及优化、整合认知无线系统等多尺度通信及感知技术、绿色通信、绿色感知、能量收集技术、可见光通信、电力线通信、无线信息和功率传输、轨道角动量调制技术等天线、微波及射频滤波器、放大器、混频器等器件设计以及系统集成、空间映射技术、替代模型建模优化、电磁仿真调试技术、微波器件计算机辅助设计等领域的应用。

2.微电

半导体物理、电子功能材料、固态器件、集成电路设计、微机电系统和半导体制造技术等领域的应用。

3.光电

半导体物理、电子功能材料、半导体光学、光学设计、激光器件、光纤通信、平板显示技术、半导体照明技术、光电器件工艺、半导体制造技术等领域的应用。

4.信息

图像处理、语音处理、智能装备、模式识别、机器学习、遥感原理、计算机视觉、人工智能、分子通信、纳米通信、纳米物联网、纳米传感网、生物可溶性微纳米系统、大规模多天线系统、异构社交网络、多层无线系统资源调度及优化、整合认知无线系统等多尺度通信及感知技术、绿色通信、绿色感知、能量收集技术、可见光通信、电力线通信、无线信息和功率传输、轨道角动量调制技术等天线、微波及射频滤波器、放大器、混频器等器件设计以及系统集成、空间映射技术、替代模型建模优化、电磁仿真调试技术、微波器件计算机辅助设计等领域的应用。

The specific details and methods of industrial practice should be determined by the company and supervisor at SUSTech, which must concentrate on the application of the corresponding professional/academic knowledge. The details can include (but not limited):

1. Communication

Molecular communication, nano-communication, nano-internet, nano-sensor network, bio-soluble micro-nano system, large-scale multi-antenna system, heterogeneous social network, multi-layer wireless system resource scheduling and optimization, integrated cognitive wireless system and other multi-scale communication and sensing, green communication, green sensing, energy harvesting technology, visible light communication, power line communication, wireless information and power transmission, orbital angular momentum modulation technology, antennas, microwave and RF filters, integration of amplifiers and mixers, space mapping technology, alternative model modeling optimization, electromagnetic simulation debugging technology, computer aided design of microwave devices, etc.

2. Microelectronic

Semiconductor physics, electronic functional materials, solid state devices, integrated circuit design, MEMS, and semiconductor manufacturing technologies.

3. Optoelectronic

Semiconductor physics, electronic functional materials, semiconductor optics, optical design, laser devices, fiber optic communications, flat panel display technology, semiconductor lighting technology, optoelectronic device technology, semiconductor manufacturing technology, etc.

4. Information

Image processing, speech processing, intelligent equipment, principle of pattern recognition, machine learning, remote sensing, computer vision, artificial intelligence, molecular communication, nano-communication, nanometer sensor network, bio-soluble micro-nano system, large-scale multi-antenna system, heterogeneous social network, multi-layer wireless system resource scheduling and optimization, integrated cognitive wireless system and other multi-scale communication and sensing, green communication, green sensing, energy harvesting technology, visible light communication, power line communication, wireless information and power transmission, orbital angular momentum modulation technology, antennas, microwave and RF filters, integration of amplifiers and mixers, space mapping technology, alternative model modeling optimization, electromagnetic simulation debugging technology, computer aided design of microwave devices, etc.

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

无 NA

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				
期中考试 Mid-Term Test				
期末考试 Final Exam				
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)**	实习报告 Practice Presentation	100		

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