

课程大纲

COURSE SYLLABUS

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| 1. | 课程代码/名称 Course Code/Title | 微电子前沿创新与技术领导力 Innovations & Technology Leadership on Microelectronics |
| 2. | 课程性质 Compulsory/Elective | 专业选修课 Major Elective Courses |
| 3. | 课程学分/学时 Course Credit/Hours | 4/64 |
| 4. | 授课语言 Teaching Language | 中英 Chinese & English |
| 5. | 授课教师 Instructor(s) | 陈凯 Kai CHEN |
| 6. | 是否面向本科生开放 Open to undergraduates or not | 是 Yes |
| 7. | 先修要求 Pre-requisites | (如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 具备理工科大学一二年级的数学和物理基础知识即可。 For undergraduate students, knowledge in general physics and math. |
| 8. | 教学目标 Course Objectives | (如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 通过教师在半导体集成电路领域 42 年来的学习与工作经历, 教育和培养学生在微电子领域的前沿创新能力与技术领导力, 并通过“小课堂与大世界”的实时结合和分组角色扮演与讨论互动模式, 启发学生对当前国际学科前沿现状脉动、历史发展脉络及未来演变趋势的深刻理解, 融集成电路技术领域的创新创业、科技政策、产业链管理与博弈、科技产业前瞻性和职业生涯于一体的, 既助力其当前基础学习和细分专业方向的选择, 也为其未来职业生涯的发展打下良好的思考框架与洞见。 Through sharing and analyzing the technical milestones, well-known institution evolution and international semiconductor “big events” in semiconductor industry that the teacher himself has participated and contributed, educate innovation and technology leadership, especially combine the “small classroom with big world” in real time, as well as group discussion with possible role playing to develop deep understanding and insights on the technical advancements, associated driving forces and future trends of microelectronics. |
| 9. | 教学方法 Teaching Methods | (如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 讲授, 文献阅读, 书面报告, 分组讨论与角色互动, 和个人 PPT 口头报告相结合的方式。 Lectures, material reading, word summary, group discussion and role playing, PPT oral presentation combined. |
| 10. | 教学内容 Course Contents | (如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) |
| | Section 1 | 微电子科技产业的创新与创业 Innovations and start-ups of microelectronics industry |
| | Section 2 | 半导体科技产业政策 Science & Technology Policy towards Semiconductor Industry |

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| Section 3 | 半导体产业链的管理与国际博弈 The semiconductor supply chains - its management and international competition. |
| Section 4 | “无尽前沿” @ 微电子的前沿科技创新 “Endless Frontier” @ semiconductor science and technology |
| Section 5 | 微电子的职业生涯与技术领导力 Professional career & technology leadership |
| 11. 课程考核 Course Assessment | |
| <p>(① 考核形式 Form of examination; ②. 分数构成 grading policy; ③ 如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 出勤 (16%) + 多次 PPT (内容+表达) 合计 (40%) + 课程 word 小结+总结合计 (40%) + 课程总体表现 (4%) Attendance (16%) + Multiple PPT Presentations (Content+Performance) together (40%) + Multiple Word Summaries (40%) + Class overall behavior (4%)</p> | |
| 12. 教材及其它参考资料 Textbook and Supplementary Readings | |
| 半导体与量子计算科普类阅读, 国际顶级咨询机构统计与报告, 国内外公开发表的政府文件, 专业媒体报道, 和正在召开的及一两年内的国际会议前沿研究案例..... Semiconductor and Quantum Computing technical references, research reports from top international firms, publicly available government documents and statistics, professional news coverage, as well as example papers from current and recent top international technical conferences..... | |