

## 电子科学创新实验 III (EE405) 课程大纲

- 1、2023 年春季学期前 (P1)
- 2、2023 年春季学期起 (P5)

## 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.	<b>课程名称 Course Title</b>	电子科学创新实验 III Advanced Electronic Science Experiment III
2.	<b>授课院系 Originating Department</b>	电子与电气工程系 Department of Electrical and Electronic Engineering
3.	<b>课程编号 Course Code</b>	EE405
4.	<b>课程学分 Credit Value</b>	1
5.	<b>课程类别 Course Type</b>	专业选修课 Major Elective Courses
6.	<b>授课学期 Semester</b>	秋季 Fall
7.	<b>授课语言 Teaching Language</b>	中英双语 English & Chinese
8.	<b>授课教师、所属学系、联系方式 Instructor(s), Affiliation &amp; Contact</b> (For team teaching, please list all instructors)	无 NA
9.	<b>实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</b>	待公布 To be announced
10.	<b>选课人数限额(可不填) Maximum Enrolment (Optional)</b>	

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			32		
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					
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 NA				

### 教学大纲及教学日历 SYLLABUS

#### 15. 教学目标 Course Objectives

选修此课程的学生需要选择 1 位我系教授作为导师，并在其指导下从事科研工作。

本课程希望通过让学生参与教授的科研工作，培养学生的科学素养，自学能力，以及创新思维。同时，接触世界前沿的科学知识，了解先进科研仪器，从而为未来攻读研究生学位或从事研发工作打好基础。

Each student selects a professor as course supervisor from the Department of Electrical and Electronic Engineering, joins the research group of the supervisor, and participates in a research project suggested by the supervisor.

Through the training of this course, students are expected to build up motivations and acquire basic knowledge required for scientific research, and to cultivate self-learning and critical thinking skills. In the meanwhile, students are expected to learn

#### 16. 预达学习成果 Learning Outcomes

通过这门课程，学生有望具有

1. 查找和阅读科技文献，以及自学能力
2. 运用数学，科学和工程知识进行科学探索的能力
3. 明确，规划，并解决工程问题的能力
4. 设计并实施实验，设计元器件或系统，以及/或开发算法能力
5. 使用现代工具和/或软件探索并解决工程问题的能力。
6. 分析和解释数据的能力
7. 与同学老师有效交流沟通的能力

By taking this course, students are expected to be able to 1. Search and read literature for a given topic; 2. Apply the knowledge of mathematics, science and engineering to investigate a research problem; 3. Identify, formulate and solve engineering problems; 4. Design and conduct experiment, and/or design a component or system, and/or develop algorithms 5. Use modern tools and software to investigate and solve engineering problems 6. Analyse and interpret data, 7. Communicate effectively with peer students and

professors. 8. Cultivate self-disciplinary working altitude.

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.)**

第1周：学生选择创新实验项目，递交课题简介表。

第2-14周：学生进行创新实验项目（第8周递交项目期中审核表）。

第15-16周：准备创新实验项目口头报告和书面报告，项目导师审核项目报告。

Week 1: Students choose research projects, and submit project information forms. Week 2-14: Students participant in chosen research projects (and submit mid-term project evaluation forms at week 8). Week 15-16: Students give oral presentations and submit written reports, and professors evaluate project reports .

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

无

**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				

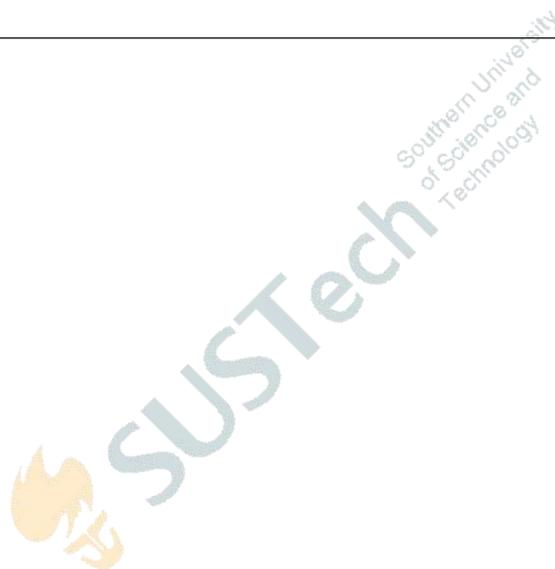
期末考试 Final Exam				
期末报告 Final Presentation		70		口头报告和书面报告 Project oral presentation and written report
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)		30		项目期中审核：10% 考核监督人期末考核成绩：20% Mid-term project evaluation: 10% Project evaluation by project modulator at final-term: 20%

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



## 课程详述

### COURSE SPECIFICATION

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3.	<b>课程编号 Course Code</b>	EE405
4.	<b>课程学分 Credit Value</b>	1
5.	<b>课程类别 Course Type</b>	专业核心课 Major Core Courses
6.	<b>授课学期 Semester</b>	春季 Spring 和 秋季 Fall
7.	<b>授课语言 Teaching Language</b>	中英双语 English & Chinese
8.	<b>授课教师、所属学系、联系方式 Instructor(s), Affiliation &amp; Contact</b> (For team teaching, please list all instructors)	无 NA
9.	<b>实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</b>	待公布 To be announced
10.	<b>选课人数限额(可不填) Maximum Enrolment (Optional)</b>	

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			32		
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	EE317 《电子科学创新实验 I》 或 EE318 《电子科学创新实验 II》				
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.	无 NA				

### 教学大纲及教学日历 SYLLABUS

#### 15. 教学目标 Course Objectives

修读此课程的学生需要选择 1 位我系教授作为导师，并在其指导下开展软硬件结合的课程项目。

本课程希望通过让学生通过课程项目参与教授的科研工作，培养学生的科学素养，自学能力，以及创新思维。同时，接触世界前沿的科学知识，了解先进科研仪器，深入结合软硬件开展科学研究，从而为未来攻读研究生学位或从事研发工作打下坚实基础。

Each student selects a professor as course supervisor from the Department of Electrical and Electronic Engineering, joins the research group of the supervisor, and participates in a research project that combines software and hardware suggested by the supervisor.

Through the training of this course, students are expected to build up motivations and acquire basic knowledge required for scientific research, and to cultivate self-learning and critical thinking skills. In the meanwhile, students are expected to contact with the world's forefront scientific knowledge, understand advanced scientific research instruments, and carry out scientific research through combining software and hardware, so as to lay a solid foundation for graduate degree or engaging in R & D in the future.

#### 16. 预达学习成果 Learning Outcomes

通过这门课程，学生有望具有：

1. 查找和阅读科技文献，以及自学能力。
2. 运用数学，科学和工程知识进行科学探索的能力。
3. 明确，规划，并解决工程问题的能力。
4. 设计并实施实验，设计元器件或系统，以及开发 APP 或算法的能力。
5. 使用现代工具和/或软件探索并解决工程问题的能力。
6. 分析和解释数据的能力。

7. 和同学老师有效交流沟通的能力。

8. 自律的工作态度。

By taking this course, students are expected to be able to

1. Search and read literature for a given topic;
2. Apply the knowledge of mathematics, science and engineering to investigate a research problem;
3. Identify, formulate and solve engineering problems;
4. Design and conduct experiment, and/or design a component or system, and/or develop APP or algorithms;
5. Use modern tools and software to investigate and solve engineering problems ;
6. Analyse and interpret data;
7. Communicate effectively with peer students and professors;
8. Cultivate self-disciplinary working altitude.

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.)**

第 1-3 周：学生选择创新实验项目，递交课题简介表。

第 4-16 周：学生进行创新实验项目 (第 8 周递交项目期中审核表)。

第 17-18 周：准备创新实验项目口头报告和书面报告，考核小组现场评估和审核项目报告。

Week 1-3: Students choose research projects, and submit project information forms.

Week 4-16: Students participant in chosen research projects (and submit mid-term project evaluation forms at week 8).

Week 17-18: Students give oral presentations and submit written reports, and the panel evaluates project reports.

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

无

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		80		
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)		20		期中考核

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

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