

课程大纲 COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	EEXXX/Digital Control
2.	课程性质 Compulsory/Elective	Elective
3.	开课单位 Offering Dept.	Department of Electronic and Electrical Engineering
4.	课程学分/学时 Course Credit/Hours	3
5.	授课语言 Teaching Language	English
6.	授课教师 Instructor(s)	Li Qiu
7.	开课学期 Semester	2023 Spring
8.	是否面向本科生开放 Open to undergraduates or not	yes
9.	先修要求 Pre-requisites	<p>(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.)</p> <p>We may have different grading scheme for PG students and UG students. For PG, a course project with research flavour is required. For UG, a course project with containing design case studies is required.</p>
10.	教学目标 Course Objectives	<p>(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.)</p> <ol style="list-style-type: none"> Master the basic theory of linear digital systems and control. Understand how the theory can be applied to practical problems. Learn the research trend in digital control so to be ready to conduct research in digital control. (This part is mostly for graduate students.)
11.	教学方法 Teaching Methods	<p>(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.)</p> <ol style="list-style-type: none"> The course consists mostly of classroom lecturing. Student participation is encouraged through discussions, seminars, course projects.
12.	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	Basic Concepts
	Section 2	LTI State Space System Analysis
	Section 3	Realization
	Section 4	Elementary Feedback Control

	Section 5	System Performance
	Section 6	An Input–Output Stabilization Theory
	Section 7	Riccati Equations and Inequalities
	Section 8	Applications of Riccati Equation
	Section 9	H ₂ Optimization
	Section 10	H _∞ Optimization
	
13.	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.)</p> <p>1.Form of examination: Midterm exam and final exam. 2.Grading policy: Homework: 30%, Midterm exam: 20%, Final exam: 30%, Course project: 20%. 3.For undergraduate students: the same grading policy but the course project will be less demanding.</p>	
14.	教材及其它参考资料 Textbook and Supplementary Readings	
	Li Qiu: Discrete-time Linear Systems and Control (Electronic Version)	