# 课程名称 电路分析与设计

# 英文名称 English Title Circuit analysis and design

# 一、课程信息 Subject Information

课程编号:	3100113012	开课学期:	4	
Subject ID	3100113012	Semester	7	
课程分类:	学科素养 SE	所属课群:	专业基础 MF	
Category	子件系介 SE	Section	マ业圣仙 MI	
课程学分:	3.5	总学时/周:	56	
Credit Points	3.3	Total Hours/Weeks	30	
理论学时:	5.0	实验学时:	0	
LECT. Hours	56	EXP. Hours	0	
PBL 学时:	0	实践学时/周:	0	
PBL Hours	0	PRAC. Hours/Weeks	0	
开课学院:	东北大学	适用专业:	深度工机 CD	
College	悉尼智能科技学院	Stream	通信工程 CE	
课程属性:	N. ld. C.	课程模式:	71.7# x mg	
Pattern	必修 Compulsory	Mode	引进 UTS	
中方课程协调人:	- <del> - - -</del> 1005	成绩记载方式:	7 // thil 3.5 1	
NEU Coordinator	韩鹏	Result Type	百分制 Marks	
先修课程:	高等数学、线性代数、复变函数与积分变换、电路原理			
Requisites		代数、复变函数与积分	'类狭、电路原埋	
英文参考教材:	Iames W Nilsson	Susan Riedel - Elec	etric Circuits, Global	
EN Textbooks	Edition-Pearson (2019)		cure circuits, Giodai	
ET ( Textoooks	Zanion Fearson (2019)	,		
中文参考教材:	+1.14 // 4 nb / Fp V/ Viz	\\\		
CN Textbooks	教材《电路(邱天源)	教材《电路 (邱关源)》第五版		
教学资源:	httms://xxxxxxx.iooxmoo16	2 ama/aaymaa/widiam 1920	06	
Resources	nups://www.icourse16.	3.org/course/xidian-4830	00	
课程负责人(撰写人):		提交日期:		
Subject Director	韩鹏	Submitted Date	3/25/2023	
任课教师(含负责人):	Submitted Date			
Taught by	陈霞,曹知奥			
审核人:	批准人:			
Checked by	韩鹏	Approved by	史闻博	
Checked by	批准日期:			
	Approved Date 3/25/2023			
		Approved Date		

### 二、教学目标 Subject Learning Objectives (SLOs)

注: 毕业要求及指标点可参照悉尼学院本科生培养方案,可根据实际情况增减行数

Note: GA and index can be referred from undergraduate program in SSTC website. Please add/reduce lines based on subject.

Note: GA and findex can be refe	rrea from t	indergraduate program in SSTC website. Please add/reduce lines based on subject.		
	原理活货、多路后,	文课程的学习,使学生掌握电路分析与设计的基本概念、基本中基本分析方法,包括:电路模型的建立、时域和频域的分析以及对结果的物理解释、物理意义等;理解各种变换(傅里叶拉普拉斯变换等)的基本内容、性质和应用。特别要建立电流的频域分析的概念以及系统函数的概念,为学生进一步学习课程(通信原理、数字信号处理等)打下坚实的基础。激发学本专业信号与系统学科方面的兴趣与学习热情,使学生分析问解决问题的能力有所提高。		
	Throug	gh the study of this course, students will master the basic		
整体目标:		ots, basic principles and basic analysis methods of signal and		
Overall Objective	_	theory, including: the establishment of mathematical models of		
	_	s, time-domain and frequency-domain analysis methods, and the		
		al interpretation of the results, Physical meaning, etc.; understand		
		sic content, properties and applications of various transforms		
		er transform, Laplace transform, etc.). In particular, the concept		
	of free	quency domain analysis of systems and the concept of system		
	functions should be established to lay a solid foundation for students to			
	further study subsequent courses (communication principles, digital			
	signal	signal processing, etc.). Stimulate students' interest and learning		
	enthus	siasm in the signal and system disciplines of this major, and		
	improv	ve their ability to analyze and solve problems		
		理解电路分析的概念和方法, 熟练掌握电路的时域、频域以		
		及变换域分析方法。		
	1-1	Understand the concept and classification of circuits, and be		
		proficient in circuits analysis methods in the time domain,		
		frequency domain, and transform domain.		
		理解时域频域电路的概念和分类,掌握系统数学模型的建立		
		方法,熟练掌握系统的时域、频域以及变换域分析方法。		
	1-2	Understand the concept and classification of the system, master		
(1) 专业目标:	12	the method of establishing the mathematical model of the		
Professional Ability		system, and be proficient in the time domain, frequency		
		domain and transform domain analysis methods of the system.		
		熟练掌握电路分析方法在电子、控制等领域的工程应用。		
	1-3	Familiar with the engineering application of system analysis		
		methods in the fields of electronic and control.		
		培养科学与工程应用的意识和素质,逐步培养学生的探索精		
		神和创新能力。		
	1-4	Cultivate the consciousness and quality of science and		
		engineering application, and gradually cultivate students'		
( ) () () ()		exploration spirit and innovation ability.		
(2) 德育目标:	2-1	激发学生对电路分析与设计方向的兴趣与学习热情,提高学		

Essential Quality		生分析和解决实际工程问题的能力,为将是	来从事电子设备设			
		计与研发奠定必要的基础。				
		Stimulate students' interest and learning enthusiasm in the				
		direction of circuits processing, improve	students' ability to			
		analyze and solve practical engineering pro	•			
		necessary foundation for future electronic device design and				
		research and development.				
		提高学生思维、判断、分析与解决问题能	力,形成敬业、守			
		信、高校、精益求精的职业素养。				
	2-2	Improve students' thinking, judgmen	t, analysis and			
		problem-solving abilities, and form p	professionalism of			
		dedication, trustworthiness, colleges, and exc	cellence.			
课程教	学目标-	与毕业要求的对应关系 Matrix of GA & SI	ı.Os			
毕业要求 GA		指标点 GA Index	教学目标 SLOs			
1、工程知识:能够将数学、自然科学、工程基础和专业知识用于解决电子信息工程相关问题。 2、问题分析:能够应用数学、		指标点 1-1: 掌握数学、自然科学、工程基础和专业知识,并能够将其运用到复杂电子信息工程问题的恰当表述中。 指标点 1-2: 掌握电路与系统分析、时域电路转换,频域电路分析等专业知识,具备分析设计电路的能力。 指标点 1-5: 掌握在电子信息工程专业的相关领域进行工程设计、技术创新的能力。 指标点 2-1: 能够针对实际问题设计针对性的技术方案,并综合运用所学科学理	1-1、1-8、2-1、 2-4、3-1、3-4、 3-5。 1-3, 1-4			
自然科学和工程科学的基本原理,识别、表达、并通过 文献研究分析复杂工程问题,以获得有效结论。		论和技术手段分析解决。 指标点 2-2: 能够有效分析和处理电路系统、电力系统网络、模拟及数字电路等方面的技术与管理问题。	1-6、1-7、2-2、 2-3、3-2、3-3、 3-5。			
3、设计/开发解决方案 够设计针对复杂工程的解决方案,设计满足特 求的系统、单元(部位 工艺流程,并能够在设 节中体现创新意识,是 会、健康、安全、法征 化以及环境等因素。	问题 诗 )	指标点 3-1: 具备本专业所需的设计/开发技能,能够设计针对复杂工程问题的解决方案,设计满足特定需求的系统或工艺流程。 指标点 3-2: 能够在工作中表现出创新意识,创新的解决复杂问题; 指标点 3-3: 能够在工程设计中综合考虑社会、健康、安全、法律、文化等因素。	1-5、2-1、2-2、 2-3、2-4、3-3、 3-4、3-5。			

# 三、教学内容 Content (Topics)

注:以中英文填写,各部分内容的表格可根据实际知识单元数量进行复制、扩展或缩减 Note: Filled in both CN and EN, extend or reduce based on the actual numbers of knowledge unit

### 理论教学 Lecture

知识单元序号:	1		支撑教学目标:	1-1, 2-1, 3-1, 3-3
Knowledge Unit No.	1		SLOs Supported	11, 21, 31, 33
知识单元名称 Unit Title	绪论 Introduction			
知识点: Knowledge Delivery	电压和电流测电路的基尔和分析具有独立Sources 阶跃信号与产	t Containing Dependent se signal d Current-Divider		
			法 Voltage Division and C	
	三角星型电路转换 Delta-to-Wye (Pi-to-Tee) Equivalent Circuits			
	了解: Recognize		电流源定义 Voltage ai 基尔霍夫定律  Kirchhofl	
学习目标: Learning Objectives	理解: Understand		有独立电源的电路 Ar ng Dependent	nalyzing a Circuit
	掌握: Master		号与冲激信号 Step si 分流概念与方法 Volta	gnal and impulse signal age Division and Current
	激发学生对电路分析与设计方向的兴趣与学习热情,提高学生 分析和解决实际工程问题的能力,为将来从事电子设备设计与 研发奠定必要的基础			
Stimulate students' interest and learning enthusiasm in the direction of signal and information processing, improve students ability to analyze and solve practical engineering problems lay the necessary foundation for future electronic device dead and research and development.			ssing, improve students' ineering problems, and lectronic device design	
	提高学生思维、判断、分析与解决问题能力,形成敬业、守信、 高校、精益求精的职业素养			
			nking, judgment, analyst rofessionalism of dedica colleges, and excellence	ntion, trustworthiness,
重点:	分析具有独立	Z电源的	电路 Analyzing a Circui	t Containing Dependent

Key Points	Sources
	阶跃信号与冲激信号 Step signal and impulse signal
	分压器和分流器电路 The Voltage-Divider and Current-Divider
	Circuits
	分压和分流概念与方法 Voltage Division and Current Division
难点:	分析具有独立电源的电路 Analyzing a Circuit Containing Dependent Sources
Focal points	分压器和分流器电路 The Voltage-Divider and Current-Divider Circuits

知识单元序号:	2		支撑教学目标:	12 21 21 22
Knowledge Unit No.			SLOs Supported	1-2, 2-1, 3-1, 3-3
知识单元名称	一阶 RL,RC 🗉	<b></b> <b></b> <b></b> <b></b> <b></b> <b></b> <b></b> <b></b> <b></b> <b></b>		
Unit Title	Response of F	irst-Order	RL and RC Circuits	
	RL 电路的自然响应			
	The Natural Response of an RL Circuit			
	RC 电路的自	然响应		
	The Natural R	Response	of an RC Circuit	
	RL,RC 电路的	的阶跃响	M.	
/ \\   \	The Step Resp	onse of a	an RL and RC Circuit	
知识点:	阶跃和自然啊	向应的通	甲解	
Knowledge Delivery	A General Solution for Step and Natural Responses			
	一阶 RL, RC 电路的顺序切换			
	Sequential Switching of first-order RL, RC circurts			
	积分放大器			
	The Integrating Amplifier			
	了解:   积分放大器			
	Recognize		egrating Amplifier	
			8的自然响应	
学习目标:	理解:	The Nat	ural Response of an RL (	Circuit
Learning Objectives	Understand	RC 电路	各的自然响应	
		The Nat	ural Response of an RC (	Circuit
	掌握:	阶跃和	自然响应的通用解	
	Master	A Gener	ral Solution for Step and	Natural Responses
	激发学生对电路分析与设计方向的兴趣与学习热情,提高学生			
<b>海</b> 古 口 仁	标: 分析和解决实际工程问题的能力,为将来从事电子设备设计研发奠定必要的基础			区从事电子设备设计与
德育目标:				Щ
Moral Objectives				
	Stimulate students' interest and learning enthusiasm in the			
	direction of signal and information processing, improve students'			

ability to analyze and solve practical engineering problems, and		
lay the necessary foundation for future electronic device design		
and research and development.		
提高学生思维、判断、分析与解决问题能力,形成敬业、守信、		
高校、精益求精的职业素养		
Improve students' thinking, judgment, analysis and problem-solving		
abilities, and form professionalism of dedication, trustworthiness,		
•		
colleges, and excellence.		
<b>上电路的自然响应</b>		
ne Natural Response of an RL Circuit		
C 电路的自然响应		
ne Natural Response of an RC Circuit		
L,RC 电路的阶跃响应		
ne Step Response of an RL and RC Circuit		
跃和自然响应的通用解		
771 A 311 17/284 C) 18/41		
General Solution for Step and Natural Responses		
L,RC 电路的阶跃响应		
ne Step Response of an RL and RC Circuit		
跃和自然响应的通用解		
General Solution for Step and Natural Responses		
1		

知识单元序号: Knowledge Unit No.	3		支撑教学目标 SLOs Supported	: 1-3、2-1、2-2、3-1、 1 3-3、3-5
		\ L . BA B		1 3-31 3-3
知识单元名称	RLC 电路自然	<b>与</b> 阶跃师	<u>1)//</u>	
Unit Title	Natural and Sto	ep Respor	ses of RLC Circuits	
	并联 RLC 电路的自然响应简介 Introduction to the Natural Response of a Parallel RLC Circuit			
	并联 RLC 电	路的自然	响应形式	
	The Forms of the Natural Response of a Parallel RLC Circuit			
知识点:	并联 RLC 电路的阶跃响应			
Knowledge Delivery	The Step Response of a Parallel RLC Circuit			
	串联 RLC 电路的自然和阶跃响应			
	The Natural and Step Response of a Series RLC Circuit			
	具有两个积分	具有两个积分放大器的电路		
	A Circuit with Two Integrating Amplifiers			
学习目标:	理解:	并联 RI	C 电路的自然响应简	介
	Understand	Introduc	tion to the Natural Re	sponse of a Parallel RLC
Learning Objectives	Understand	Circuit		-

		串联 RLC 电路的自然和阶跃响应	
		The Natural and Step Response of a Series RLC Circuit	
	掌握:	并联 RLC 电路的自然响应形式	
	事证. Master	The Forms of the Natural Response of a Parallel RLC	
		Circuit	
		上对电路分析与设计方向的兴趣与学习热情,提高学生	
	分灯和用	军决实际工程问题的能力,为将来从事电子设备设计与 研发奠定必要的基础	
		nulate students' interest and learning enthusiasm in the	
		n of signal and information processing, improve students'	
德育目标:	_	to analyze and solve practical engineering problems, and necessary foundation for future electronic device design	
Moral Objectives	lay tile	and research and development.	
Wildian Objectives	1	•	
	提高学生思维、判断、分析与解决问题能力,形成敬业、守信、		
		高校、精益求精的职业素养	
	_	dents' thinking, judgment, analysis and problem-solving	
	abilities, and form professionalism of dedication, trustworthiness,		
	)/_T// Px G -L	colleges, and excellence.	
		路的自然响应形式	
		the Natural Response of a Parallel RLC Circuit 路的阶跃响应	
重点:			
Key Points	The Step Resp	ponse of a Parallel RLC Circuit	
	串联 RLC 电	路的自然和阶跃响应	
	The Natural a	nd Step Response of a Series RLC Circuit	
		路的阶跃响应	
难点:		ponse of a Parallel RLC Circuit	
Focal points	串联 RLC 电	路的自然和阶跃响应	
	The Natural a	nd Step Response of a Series RLC Circuit	

知识单元序号:	4	支撑教学目标:	1-4, 2-1, 2-3, 3-3,	
Knowledge Unit No.		SLOs Supported	3-4、3-5	
知识单元名称	正改殺太由盟	收分析 Sinusoidal Steady	State Analysis	
Unit Title	正弦稳态电路分析 Sinusoidal Steady-State Analysis			
	正弦稳态电源的概念。	和表示形式		
	Concept and representation of sinusoidal steady-state power supply			
	电路在正弦电源下的响应分析			
知识点:	Analysis of the response of the circuit under sinusoidal power 相量法的概念和表示方法			
Knowledge Delivery				
	Concepts and representations of phasor methods			
	频域中的无源电路元件			
	The Passive Circuit Elements in the Frequency Domain			

	超操用码 # 5			
	频域中的基尔霍夫定律			
	Kirchhoff's Laws in the Frequency Domain			
	串联、并联和三角形到星形简化			
	Series, Parallel, and Delta-to-Wye Simplifications			
	源变换和戴维	全宁-诺顿等效电路		
	Source Transf	Formations and Th évenin–Norton Equivalent Circuits		
	节点电压法			
	The Node-Vo	ltage Method		
	网孔电流法			
	The Mesh-Cu			
	了解:	正弦稳态电源的概念和表示形式		
	Recognize	Concept and representation of sinusoidal steady-state		
		power supply 电路在正弦电源下的响应分析		
	理解:	Analysis of the response of the circuit under sinusoidal		
	Understand	power		
   学习目标:				
Learning Objectives		The Passive Circuit Elements in the Frequency Domain		
<i>B</i> 1.3		频域中的基尔霍夫定律		
	掌握:	Kirchhoff's Laws in the Frequency Domain		
	Master	节点电压法		
		The Node-Voltage Method		
		网孔电流法		
		The Mesh-Current Method		
	激发学生	E对电路分析与设计方向的兴趣与学习热情,提高学生		
	分析和解	军决实际工程问题的能力,为将来从事电子设备设计与		
		研发奠定必要的基础		
	Stim	ulate students' interest and learning enthusiasm in the		
	direction	n of signal and information processing, improve students'		
   徳育目标:	ability t	to analyze and solve practical engineering problems, and		
1	lay the	necessary foundation for future electronic device design		
Moral Objectives		and research and development.		
	提高学生	E思维、判断、分析与解决问题能力, 形成敬业、守信、		
		高校、精益求精的职业素养		
	Improve stu	dents' thinking, judgment, analysis and problem-solving		
	abilities, and form professionalism of dedication, trustworthiness,			
		colleges, and excellence.		
	相量法的概念			
重点:	Concepts and representations of phasor methods			
Key Points	频域中的无源电路元件			
	The Passive C	Circuit Elements in the Frequency Domain		

	频域中的基尔霍夫定律	
	Kirchhoff's Laws in the Frequency Domain	
	串联、并联和三角形到星形简化 Series, Parallel, and Delta-to-Wye Simplifications	
	频域中的基尔霍夫定律	
难点: Focal points	Kirchhoff's Laws in the Frequency Domain 串联、并联和三角形到星形简化	
	Series, Parallel, and Delta-to-Wye Simplifications	

知识单元序号:	5		支撑教学目标:	1-3、2-1、2-4、3-4、	
Knowledge Unit No.	_	SLOs Supported 3-5			
知识单元名称 Unit Title	正弦稳态电路功率分析 Sinusoidal Steady-State Power Calculations				
	瞬时功率定义				
	Instantaneous	Instantaneous power definition			
	有功、无功功	力率定义			
	Average and I	Reactive I	ower		
知识点:	rms 值和电路	的 功率的	算		
Knowledge Delivery	The rms Value	e and Pow	er Calculations		
	正弦稳态电路	各的复功	率计算		
	Complex pow	Complex power calculation for a sinusoidal steady-state circuit			
	最大功率传输的定义和计算				
	Definition and calculation of Maximum Power Transfer				
		瞬时功	率定义		
	了解:	Instanta	neous power definition		
	Recognize	有功、	无功功率定义		
<i>w</i> → □ □		Average	and Reactive Power		
学习目标:	理解:	rms 值和	中电路功率的计算		
Learning Objectives	Understand	The rms	Value and Power Calcul	ations	
	掌握:	正弦稳定	态电路的复功率计算		
	子近. Master	Comple	x power calculation for a	sinusoidal steady-state	
		circuit			
			分析与设计方向的兴趣-		
	分析和解决实际工程问题的能力,为将来从事电子设备设计与				
   徳育目标:	研发奠定必要的基础				
	Stimulate students' interest and learning enthusiasm in the			g enthusiasm in the	
Moral Objectives direction of signal and information processing, improve			=		
	ability to analyze and solve practical engineering problems, and			• •	
	lay the necessary foundation for future electronic device design				

	and research and development.		
	提高学生思维、判断、分析与解决问题能力,形成敬业、守信、 高校、精益求精的职业素养		
	Improve students' thinking, judgment, analysis and problem-solving		
	abilities, and form professionalism of dedication, trustworthiness, colleges, and excellence.		
	有功、无功功率定义		
	Average and Reactive Power		
	rms 值和电路功率的计算		
重点:	The rms Value and Power Calculations		
Key Points	正弦稳态电路的复功率计算		
	Complex power calculation for a sinusoidal steady-state circuit		
	最大功率传输的定义和计算		
	Definition and calculation of Maximum Power Transfer		
	正弦稳态电路的复功率计算		
Focal points	Complex power calculation for a sinusoidal steady-state circuit		
,			

知识单元序号:	6		支撑教学目标:	1-6, 2-1, 3-3, 3-4	
Knowledge Unit No.			SLOs Supported	10, 21, 33, 31	
知识单元名称	H 11/2 T1	*+:+4. I	Λ+⊑ m	and to Cinc. 'A Anal at	
Unit Title	电岭 Lapiac	ze 投换与	分析 The Laplace Transfo	rm in Circuit Analysis	
	电路元件的 S 域表示				
	Circuit Eleme	Circuit Elements in the s Domain			
	S域范围内的	J电路分析	f		
	Circuit Analys	sis in the	s Domain		
	Laplace 变换	在电路的	」应用		
	The application	The application of Laplace transform in circuits			
知识点:	部分分数展开中的传递函数				
Knowledge Delivery	The Transfer Function in Partial Fraction Expansions				
	传递函数和卷积积分				
	The Transfer Function and the Convolution Integral				
	传递函数和稳	传递函数和稳态正弦响应			
	The Transfer Function and the Steady-State Sinusoidal Response				
	电路分析中的脉冲函数				
	The Impulse Function in Circuit Analysis				
		Laplace	变换的定义、收敛域及	其性质;Laplace 变换	
学习目标:				•	
Learning Objectives	Understand The definition, convergence domain and properties of			main and properties of	
	Laplace transform.				

		The representation of the Laplace transformation in a		
		circuit		
		逆 Laplace 变换的部分分式展开法;		
	掌握:	Partial fraction expansion methods of inverse Laplace		
	Master	transform.		
	源42 兴 /	Ludisionii. 生对电路分析与设计方向的兴趣与学习热情,提高学生		
		至为电路分析与设计分间的		
	2月7月7日用 			
		研发奠定必要的基础		
	Stim	nulate students' interest and learning enthusiasm in the		
	direction	n of signal and information processing, improve students'		
<b>海</b> 玄日長.	ability	to analyze and solve practical engineering problems, and		
德育目标:	lay the	necessary foundation for future electronic device design		
Moral Objectives		and research and development.		
	坦克兴/	<b>上思维、判断、分析与解决问题能力, 形成敬业、守信、</b>		
	延问子:	高校、精益求精的职业素养		
		同仪、相血水相叫称业系介		
	Improve students' thinking, judgment, analysis and problem-solving			
	abilities, and form professionalism of dedication, trustworthiness,			
		colleges, and excellence.		
	S域范围内的	的电路分析		
	Circuit Analy	sis in the s Domain		
	Laplace 变换	Laplace 变换在电路的应用		
	The application of Laplace transform in circuits			
	部分分数展开中的传递函数 The Transfer Function in Partial Fraction Expansions			
<b>チ</b> ト				
重点:	传递函数和着	<del>_</del>		
Key Points	17处图数和1	至4八4八月		
		Function and the Convolution Integral		
	传递函数和稳态正弦响应			
	The Transfer Function and the Steady-State Sinusoidal Response			
	S 域范围内的电路分析			
	Circuit Analysis in the s Domain			
		在电路的应用		
<b>难点:</b>	The application of Laplace transform in circuits			
	部分分数展开中的传递函数			
Focal points				
	The Transfer	Function in Partial Fraction Expansions		

知识单元序号:	7	支撑教学目标:	1-7, 2-1, 3-3, 3-4
Knowledge Unit No.	/	SLOs Supported	1-/\ 2-1\ 3-3\ 3-4
知识单元名称	由吸 Formion 柱拖上	公坛 The Fourier Transfer	m in Circuit Analysis
Unit Title	电路 Fourier 转换与分析 The Fourier Transform in Circuit Analysis		
	Fourier 转换的微分形	式	
知识点:	The Derivation of the FourierTransform		
Knowledge Delivery	Fourier 积分的收敛性分析		

	The Converge	ence of the Fourier Integral			
	利用 Laplace 转换推导 Fourier 变换				
	_	Using Laplace Transforms to Find Fourier Transforms			
	• •				
	极限形式下的 Fourier 变换				
		Fourier Transforms in the Limit			
	Fourier 的运算				
	Operational T				
	Fourier 变换的				
	Circuit Applic				
	序列的傅里□				
	Fourier transf	orm of sequences.			
		Fourier 变换的定义、收敛域及其性质; LTI 离散时间系统的系统函数的定义			
	理解:	The definition, convergence domain and properties of			
   学习目标:	Understand	Fourier transform.			
Learning Objectives		Definitions of system function of LTI discrete-time			
		system.			
	掌握:	逆 Fourier 变换的部分分式展开法;			
	Master	Partial fraction expansion methods of inverse Fourier			
	NE 11 N. 1	transform.			
	激发学生对电路分析与设计方向的兴趣与学习热情,提高学生分析和解决实际工程问题的能力,为将来从事电子设备设计与研发奠定必要的基础				
德育目标: Moral Objectives	lay the necessary foundation for future electronic device				
	提高学生	E思维、判断、分析与解决问题能力,形成敬业、守信、 高校、精益求精的职业素养			
	Improve students' thinking, judgment, analysis and problem-sol abilities, and form professionalism of dedication, trustworthin colleges, and excellence.				
	Fourier 积分的	的收敛性分析			
	The Converge	ence of the Fourier Integral			
	利用 Laplace 转换推导 Fourier 变换 Using Laplace Transforms to Find Fourier Transforms				
重点:	极限形式下的 Fourier 变换				
Key Points					
	Fourier 变换的电路应用				
	Circuit Applications				

	Fourier 的逆变换的电路应用
	Circuit Applications of inverse Fourier
	Fourier 变换的电路应用
难点:	Circuit Applications
Focal points	Fourier 的逆变换的电路应用
	Circuit Applications of inverse Fourier

	Τ		1			
知识单元序号:	8		支撑教学目标:	1-8, 2-1, 3-3, 3-4		
Knowledge Unit No.	8		SLOs Supported	1-0\ 2-1\ 3-3\ 3-4		
知识单元名称		西邊	口网络分析 Two-Port Ci	rouite		
Unit Title		四四	口內紹刀机 IWO-FOIT CI	icuits		
	两端口网路概	两端口网路概念				
	Concept of Tw	o-Port C	ircuits			
	两端口网络樽	莫型				
	Two-Port Circu	uits mode	ls			
	两端口网络等	<b>芹式建立</b>				
知识点:	Establishment	of equat	ions of Two-Port Circuits			
Knowledge Delivery	两端口网络参	数设置				
	Two-Port Circu	iits paran	neters setting			
	两端口网络分	析				
	Two-Port Circu	iits analy	sis			
	两端口网络内	部互联				
	Interconnected Two-Port Circuits					
	理解:	两端口	网络的模型和电路分析			
₩ <del></del>	Understand Model and circuit analysis of two-port networks					
学习目标:	两端口网络的意义、建立和求解方法					
Learning Objectives	掌握:	Signific	ance, establishment and	solution of Two-Port		
	Master	Circuits				
	激发学生	三对电路	分析与设计方向的兴趣。	与学习热情,提高学生		
	分析和解	<b>ア</b> 决实际	工程问题的能力,为将来	区从事电子设备设计与		
			研发奠定必要的基础	出		
	Stim	ulate stud	lents' interest and learning	σ enthusiasm in the		
			), improve students' abilit			
· 德育目标:			ring problems, and lay the	-		
	_	_		-		
Moral Objectives	for future electronic device design and research and development. 提高学生思维、判断、分析与解决问题能力,形成敬业、守信、			-		
	高校、精益求精的职业素养					
	Improve students' thinking, judgment, analysis and problem-solving			and problem-solving		
	abilities, and form professionalism of dedication, trustworthiness, colleges, and excellence.					
重点:	两端口网络模型的建立与求解					
Key Points	Establishment and solution of Two-Port Circuits					
难点:	两端口网络方程的建立					
Focal points	Establishment of Two-Port Circuits					

等式方程的分析
Analysis of equation equations

# 四、教学安排 Teaching Schedule

注: 可根据实际情况增减行数

Note: Please add/reduce lines based on subject.

		学时(周) Hour(Week)			
教学内容 Teaching Content	理论	实验	课外实践	集中实践	
	LECT.	EXP.	PBL	PRAC.	
知识单元一:绪论	4	0	0	0	
Knowledge Unit 1:Introduction	4	U	U	U	
知识单元二:一阶 RL,RC 电路响应					
Knowledge Unit 2: Response of First-Order	4	0	0	0	
RL and RC Circuits					
知识单元三: RLC 电路自然与阶跃响应					
Knowledge Unit 3: Natural and Step Responses of RLC	12	0	0	0	
Circuits					
知识单元四:正弦稳态电路分析					
Knowledge unit 4: Sinusoidal Steady-State	10	0	0	0	
Analysis					
知识单元五: 正弦稳态电路功率分析					
Knowledge unit 5: Sinusoidal Steady-State	6	0	0	0	
Power Calculations					
知识单元六: 电路 Laplace 转换与分析					
Knowledge Unit 7: The Laplace Transform	4	0	0	0	
in Circuit Analysis					
知识单元七: 电路 Fourier 转换与分析					
Knowledge unit 8: The Fourier Transform in Circuit	10	0	0	0	
Analysis					
知识单元八:两端口网络分析		0	0	0	
Knowledge Unit 10: Two-Port Circuits	6	U	U	U	
总计 Total	56	0	0	0	

### 五、教学方法 Teaching Methodology

注: 可根据实际情况增减行数或修改内容

Note: Please add/reduce lines or revise content based on subject.

勾选 Check
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N	多媒体教学:基于信息化设备的课堂教学		
	Multi-media-based lecturing		
M	实践能力传授: 理论与行业、实际案例相结合		
	Combining theory with industrial practical problems		
M	课程思政建设:知识讲授与德育相结合		
<u>F</u>	Knowledge delivery with ethic education		
	PBL 教学:问题驱动的分组学习与交流		
	Problem-based learning		
	其他:单击或点击此处输入文字。		
	Other:单击或点击此处输入文字。		

#### 六、成绩评定 Assessment

注: 可根据实际情况增减行数或修改内容

Note: Please add/reduce lines or revise content based on subject.

考核环节:	平时 Behavior	环节负责人:	陈霞,曹知奥
Assessment Content	HJ Deliavioi	Director	
给分形式:	百分制 Marks	课程总成绩比重(%):	50
Result Type		Percentage (%)	30
考核方式: Measures	10 分,缺勤不得分, 10 分,抄袭、给他人	学习通记录学生平时的资 缺勤五次及以上取消表 、抄袭或未交作业不得允 这注意力不集中、影响课 分,不低于0分。	合试资格。每次作业计 分。每次课堂正确回答

考核环节: Assessment Content	期末 Final	环节负责人: Director	陈霞,曹知奥
给分形式:	百分制 Marks	课程总成绩比重(%):	50
Result Type		Percentage (%)	
考核方式: Measures	满分 100 分,通过批阅期末考试试卷给出学生成绩。		

## 七、改进机制 Improvement Mechanism

注: 未尽事宜以教学团队以及学院教学指导委员会商定为准。

Note: Matters not covered in this file shall be determined by TAB of SSTC, NEU.

#### 教学大纲改进机制 Subject Syllabus Improvement Mechanism

考核周期(年):	4	修订周期(年):	1		
Check Period (YR)	4	Revise Period (YR)	4		
	课程负责人根据课程教学内容与人才培养目标组织课程团队讨论				
	并修改教学大纲,报纸	分管教学工作副院长审构	亥后由执行院长批准。		
改进措施:	The subject coordinato	r shall be responsible for	the syllabus discussion		
Measures	and improvement, and the revised version shall be submitted to deputy				
	dean (teaching affairs	s) for reviewing then t	to executive dean for		
	approvement.				
成绩评定改进机制 Assessment Improvement Mechanism					
考核周期(年):	1	修订周期(年):	1		
Charle Davied (VD)			1		
Check Period (YR)		Revise Period (YR)			
Check Period (TR)	课程负责人根据课程	Revise Period (YR) 教学内容、课堂教学效身	果以及成绩分布,对课		
		` ′			
改进措施:	程教学方法和成绩评定	教学内容、课堂教学效务	步优化评定办法。		
	程教学方法和成绩评算 The subject coordinato	教学内容、课堂教学效身 定环节进行改进,并同	步优化评定办法。 s based on the teaching		