

	T-1
	P-1
1	S-1
2	M-1
3 EEG9330	I-1

	.....	T-1
1.1	.....	T-1
1.2	.....	T-1
	.....	T-4
	.....	T-4
3.1	.....	T-5
3.2	.....	T-6
3.3	.....	T-8
3.4	.....	T-8
3.5	.....	T-9
	.....	T-9
4.1	.....	T-9
4.2	.....	T-9
4.3	.....	T-10
4.4	.....	T-10
4.5	.....	T-10
	.....	T-10
5.1	.....	T-10
5.2	.....	T-11
5.2.1	.....	T-11
5.2.2	.....	T-12
5.2.3	.....	T-14
5.2.4	.....	T-14
5.3	.....	T-14
5.3.1	.....	T-15
5.3.2	.....	T-15
5.4	.....	T-16
5.5	.....	T-17

5.6	.....	T-17
5.7	.....	T-18
	.....	T-18
6.1	.....	T-18
6.2	.....	T-19
6.3	.....	T-19
6.4	.....	T-20
6.4.1	.....	T-20
6.4.2	.....	T-20
6.4.3	.....	T-20
6.5	T-21
6.5.1	T-21
6.5.2	T-21
6.5.3	T-22
6.6	T-23
6.7	T-23
6.8	T-24
6.9	T-24
6.10	T-25
	T-25
	T-26
	T-26

1.1

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1.2

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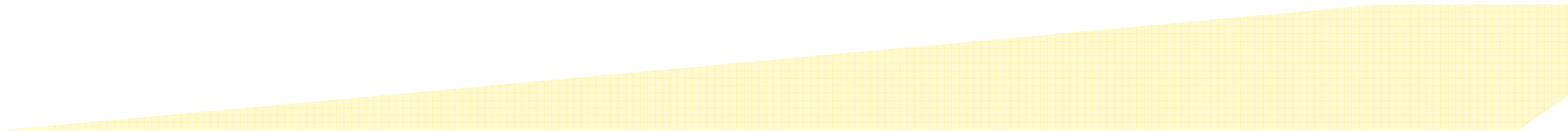
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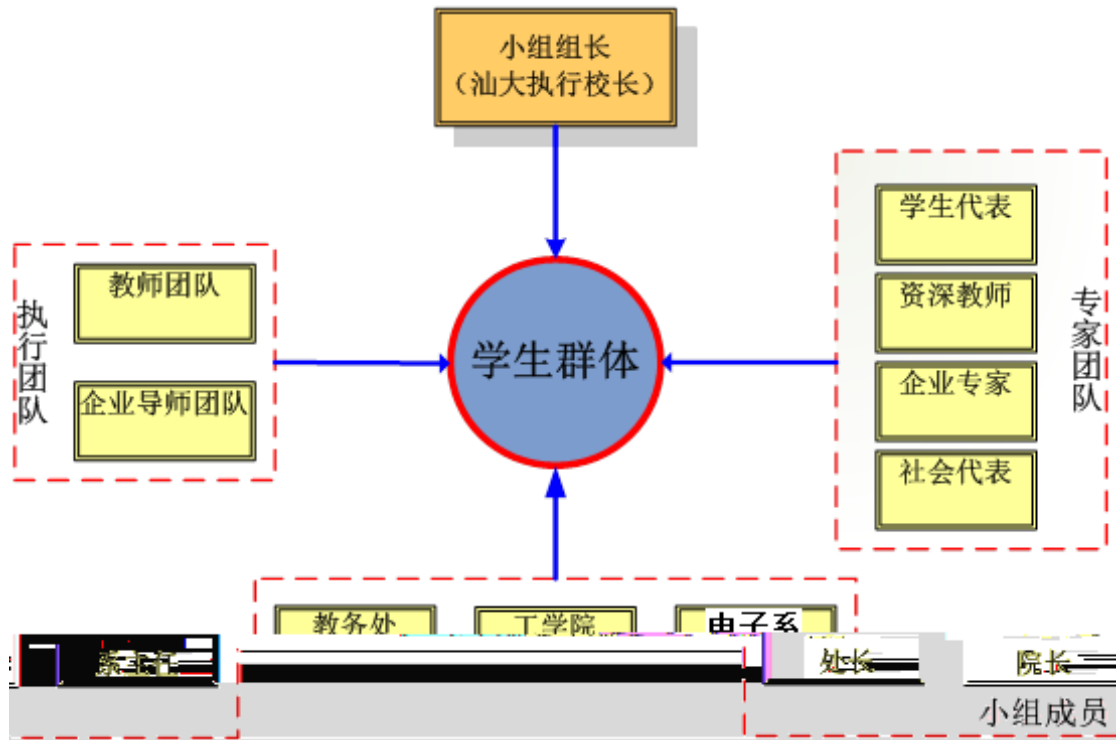
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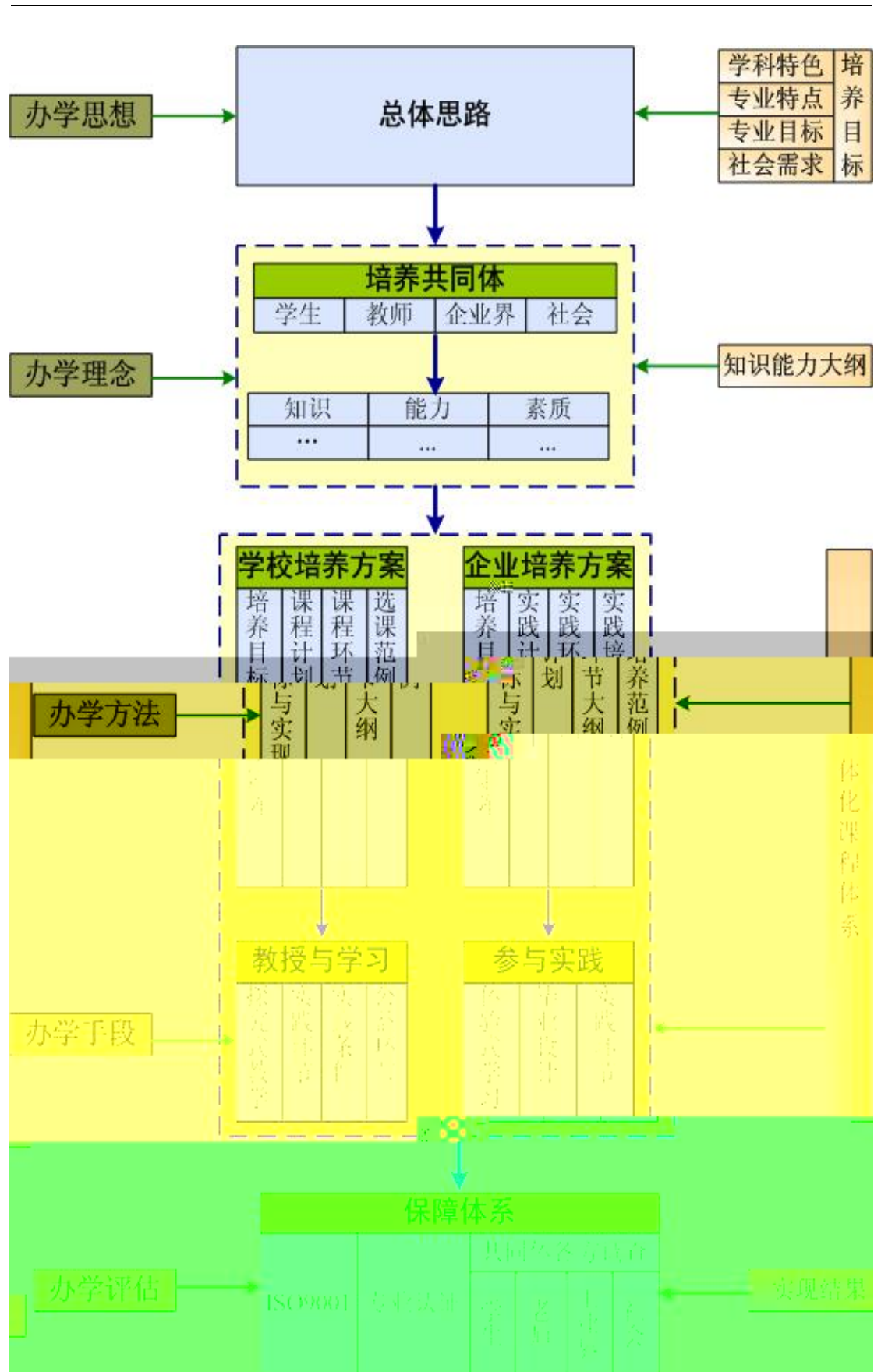
2

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- 1) ;
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ISO :

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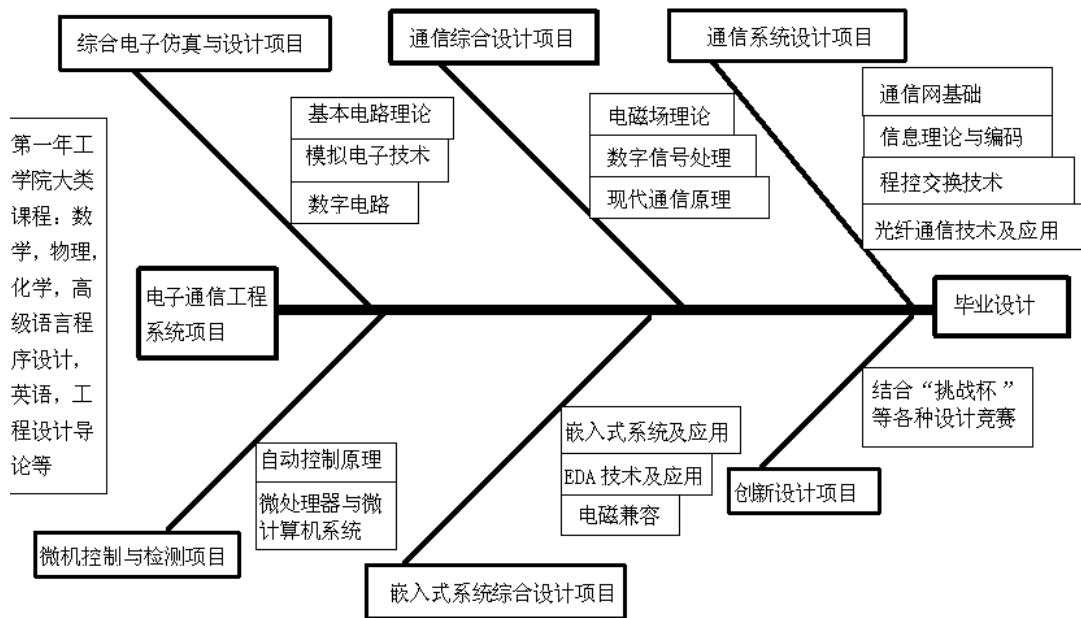
5.2.1

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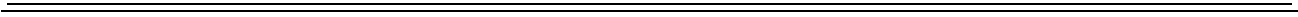
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	(DNV)	ISO9001		IEC
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1978	90	SIUI		
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		SIUI		
				SIUI

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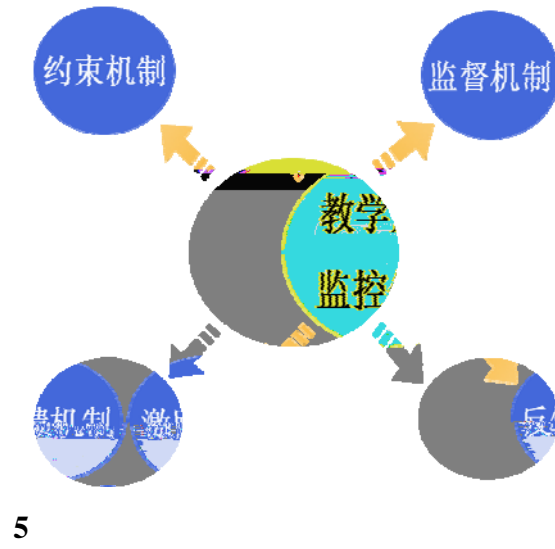
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ISO

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ISO

ISO

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- ISO
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1	S-1
2	M-1
3 EEG9330	I-1

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(1).

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(1)

21

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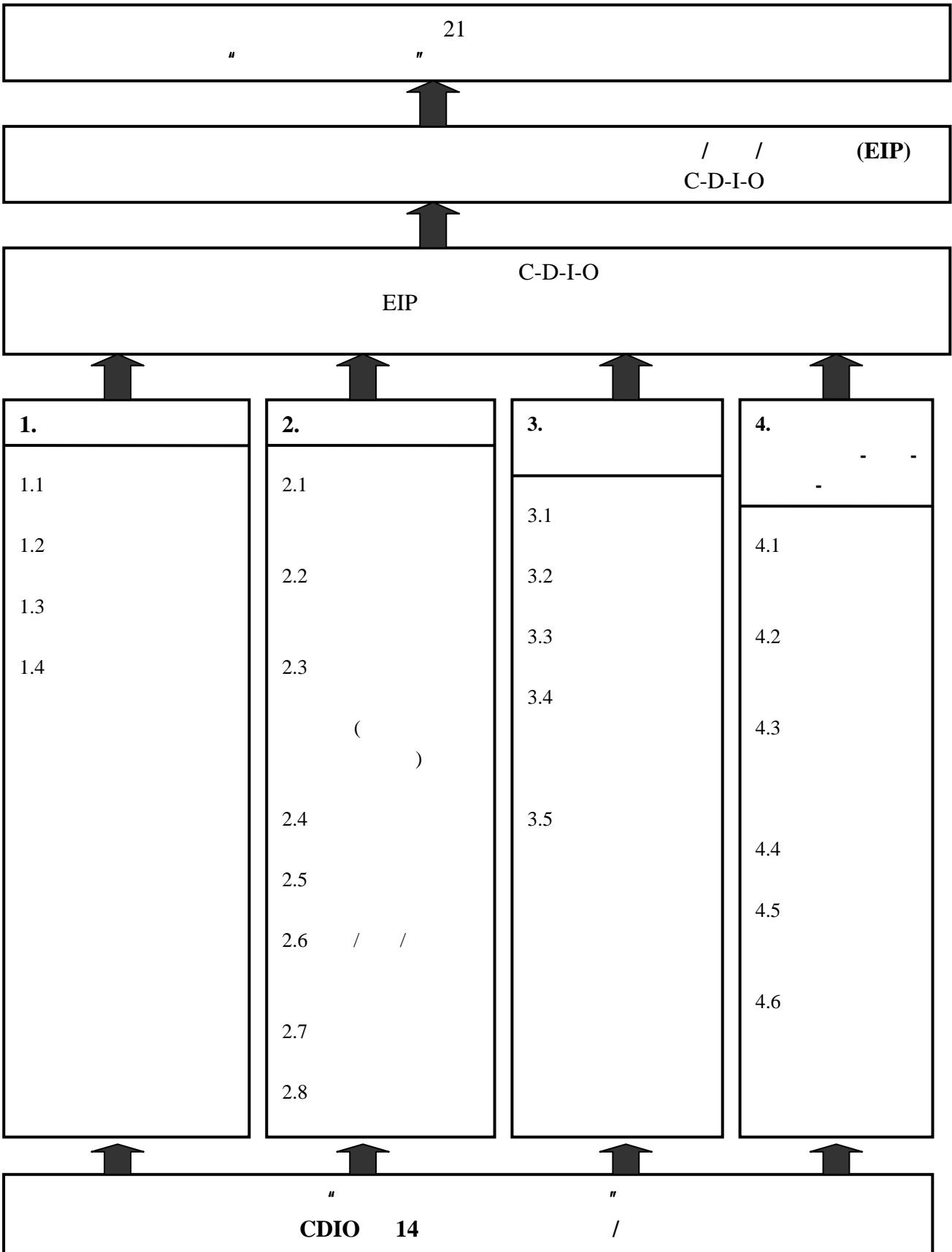
C-D-I-O

(3)

C-D-I-O

EIP

(4)



1.

1.1

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2.

2.1

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2.4

2.5

3.

3.1

3.2

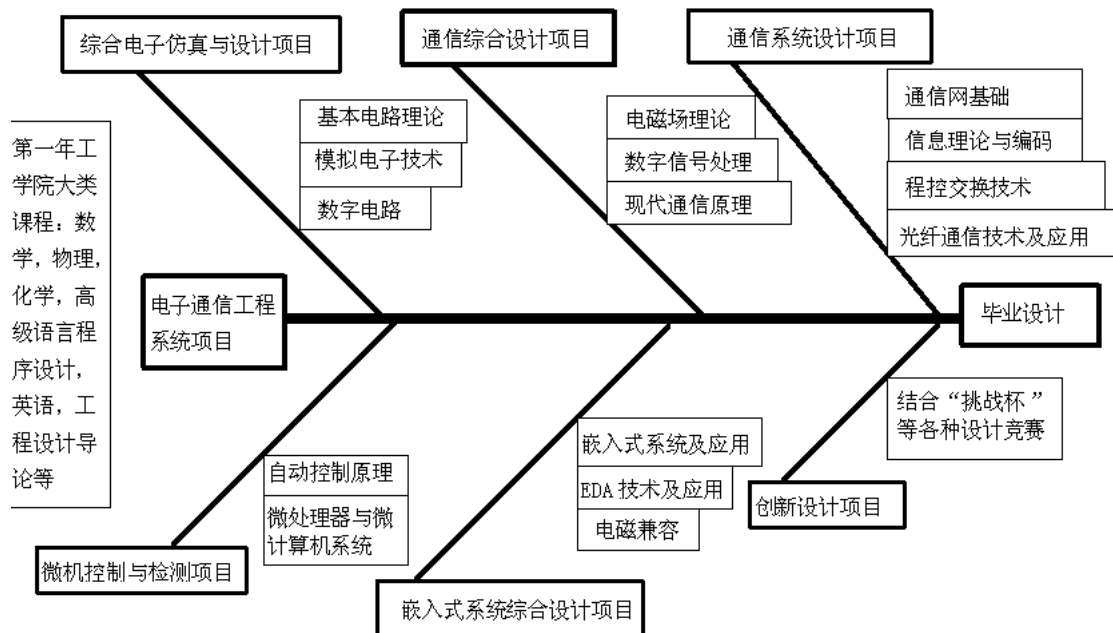
3.3

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4.4

4.5

4.6



通信工程专业核心课程培养结构示意图

1)	53		ELC4
2)	28		
3)	67	4	10
4)	162		

注：(1) 带五角星（☆）的课程为综合本专业核心专业领域的 1 级综合项目，1 级项目为本专业的核心骨架，必须按照给定的时间选修；

(2) 带双五角星 (☆☆) 的课程为 2 级综合项目, 2 级项目带领一组相关课程并有可能跨学期, 选课时必须考虑相关课程的选修以及时间顺序。

1	9 28		EEG9001		2
MAT1110		6	EEG7001 7005		5
MAT1210		6	EEG7200		1
MAT1130		2	EEG7300		10
(MAT1110)					
MAT1240		3	4	4	
(MAT1210)			ENC8000		1
PHY1030		4	EEG8010		1
PHY1000		2	EEG8020		1
ENC9101		1	EEG8030		1
ENC9103 C		3	CCE8010		1
ENC9301		1	CCE8020		1
			5	10	
	(7 26.5)				
MAT1230		2	EEG9350 DSP		2
EEG9100		4.5	EEG9010		2
EEG9110		4.5	CCE9001		2
EEG9210		4.5	CCE9002		2
EEG9220		3.5	CCE9003		2
EEG9230		4	CCE9004		2
CCE9310		3.5	CCE9005		2
			CCE9006		2
	12 40.5		CCE9007		2
EEG9240		4	CCE9008		2
EEG9250		3	CCE9009		2
EEG9310		3.5	CCE9010		2
EEG9320		2	CCE9011		2
EEG9330		3	CCE9012		2
EEG9340 EDA		2.5	CCE9013		2
EEG9370		2	CCE9014		2
CCE9320		2.5			

1

2

(Bloom's Taxonomy)

2 1() 2 3 4 5 6()

2

6	Evaluation		Appraise() Interpret() Criticize() Justify()	()
5	Synthesis		Design() Create() Organize() Reconstruct()	()
4	Analysis		Analyze() Break down() Identify() Present() Formulate() Subdivide()	()
3	Application		Apply() Conduct() Solve() Use()	
2	Comprehension	“ ”	Explain() Distinguish() Paraphrase() Summarize() Generalize()	
1	Knowledge	,	Define() Label() List() Recite() Select()	

通信工程专业卓越工程师培养计划的知识-能力-素质培养矩阵

			1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	4.1	4.2	4.3	4.4	4.5	4.6	
										EIP	CD O							VB	C	DSP
CD O			1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	4.1	4.2	4.3	4.4	4.5	4.6	
	1								1	3	2	1			1					
	4											1	3							
	6	4						1	2	4	2	2		3	2	1				
ODM	2	1	1	1	1	2	2	1	1	1	1	2	2	1	1	1	1	2	1	
MT1110	6	2	4	3	3	3	3	2	1	1	1	2	2	1	1	2	2	3	1	
MT1130	2	2	3	3	3	3	3	1	1	1	1	1	1	1	1	1	2	2	1	
ENC9110	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	
ENC9106	2	3	1	1	1	1	2	2	3	2	2	3	2	3	2	2	1	1	1	
	1								1	3	2	1			1					
	4											1	3							
MT1210	6	2	4	3	3	3	3	2	1	1	1	2	2	1	1	2	2	3	1	
PHY1030	4	1	3	2	1	1	1					1		1		1	1	1	1	
PHY1000	2	1	1	1	1	1	3					1		1		1	1	1	1	
CST9910 C	2	1		1	1	1	1	1				1	1					3		
EEG9100	5	1	2	2	1		2	1	2	2	1	2	2	2	1	2		2	1	
EEG9016	1	3	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	4	
	1	2		1					2	2	2	2	2							
	2																			
	1								1	3	2	1			1					
	4											1	3							
MT1230	2	1																		
Cornerstone	1	2							2	2	2									
EEG9110	4.5	2		3	2	2	1					1	1			1		1	2	
EEG9210	4.5	2	1	3	2	2	3	1	2	2	2	2	2	2	1	2	2	3	2	
EEG9320	2	2	3	3	3	2	3	1	1	1	1	2	2	1	1	3	2	3	3	
EEG9017	2	2	1	3	2	3	3	1	2	2	2	2	2	2	1	2	3	3	2	
	1								1	3	2	1			1					
	4											1	3							
MT1240	3	1																		
Cornerstone	1	2		1					2	2	2	2	2							
EEG9221	3	3	2	1	1	1				2	1	1				1			1	
EEG9231	4	2	1	3	2	2	3	1	2	2	2	2	2	2	1	2	2	3	2	
EEG9240	4	2		3	2	2	1					1	1			1		1	2	
EEG9250	3	2					2	1	2	2	2	1	1	1	1	2		2		
	2	3																		
EEG8010	1	3	1	3	2	2	3	1	2	2	2	2	2	2	1	2	2	3	2	
EEG8020	2		2	2	1		2	1	2	2	2	2	2	2	1	2		2	1	
	2	3																		
ENC9301	1	3																		
EEG9330	3	3	1	3	2	3	2	1	1	1	1	1	1	1	1	3	1	2	2	
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EEG9330

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1.	15
2.	17
3.	20
4.	20
5.	20
6.	20
7.	20
8.	20
	—	24
	—	28
	—FIR	29
	—FIR —	36
	—FIR —	26
	—XX XX IIR	26
	—XX XX IIR —	26
	—XX XX IIR —	26

(Digital Signal Processing)

DSP

- 1.
- 2.
3. FIR
4. IIR
5. DSP

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- " " " "
- " "
- 1.
 - 2.

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3.

DSP

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	10%
	60%
	30%
	100%

S. J. Orfanidis. Introduction to Signal Processing.

• Prentice-Hall

1. A.V. Oppenheim

2

2.

3. MATLAB

*

The application of circuit analysis and design, computer programming, associated software, analog and digital electronics, and microcomputers to the building, testing, operation, and maintenance of electrical/electronic(s) systems.	3	FIR IIR
The applications of physics or chemistry to electrical/electronic(s) circuits in a rigorous mathematical environment at or above the level of algebra and trigonometry.	1	" "
The ability to analyse, design and implement control systems, instrumentation systems, communications systems, computer systems, or power systems.	3	FIR IIR
The ability to apply project management techniques to electrical/electronic(s) systems.	1	
The ability to utilize statistics/probability, transform methods, discrete mathematics, or applied differential equations in support of electrical/electronic(s) systems.	3	FIR IIR

*

The application of electric circuits, computer programming, associated software, analog and digital electronics, voice and data communications, and the principles of telecommunications systems in the solution of telecommunications problems.	3	FIR IIR
The applications of physics to telecommunications systems in a rigorous mathematical environment at or above the level of algebra and trigonometry.	1	" "
The ability to analyze, design, and implement telecommunications systems.	3	FIR IIR
The ability to analyze and implement switching technologies, wide area networking technologies, and policy.	1	
The ability to manage, design, and plan wide area networks.	1	
The ability to utilize statistics/probability, transform methods, or applied differential equations in support of telecommunication systems and wide area networks.	3	FIR IIR

*

6	Evaluation		Appraise() Interpret() Criticize() Justify() Support()	()
5	Synthesis		Design() Develop() Create() Compose() Organize() Reconstruct()	()
4	Analysis		Analyze() Break down() Identify() Present() Formulate()	

CDIO

*

1	1.1		3	IIR FIR
			3	FIR
			2	
	1.2		3	
		DTFT DFT FFT	4	FIR
		FIR	4	FIR
		IIR	4	IIR
	1.3		2	
		FIR	2	FIR
		" "	2	DSP
			2	DSP
			1	DSP

2	2.1	2.1.1	3	
		2.1.2	3	
		2.1.3	3	
		2.1.5	3	
	2.2	2.2.2	2	
		2.2.4	3	
	2.3	2.3.1	2	
		2.3.3	3	
		2.3.4	3	
	2.4	2.4.2	2	
		2.4.4	3	
		2.4.6	2	
		2.4.7	2	
	2.5	2.5.1	3	
		2.5.3	1	
	3	3.1	3.1.1	2
3.1.2			2	
3.1.5			2	
3.2		3.2.3	3	
		3.2.4	2	
		3.2.5	3	
		3.2.6	2	
3.3		3.3.1	2	

4 (CDIO)	4.1				
	4.2				
	4.3	4.3.1		2	
		4.3.2		2	
		4.3.3		2	
	4.4	4.4.1		3	
		4.4.3		3	
		4.4.4		3	
	4.5	4.5.1		3	
		4.5.3		3	
		4.5.5		3	
	4.6	4.6.1		3	
		4.6.4		3	

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6

CDIO

1,2,3,4,5,6

	The course syllabus Why DSP is so important ? How to teach and learn?	1
	ADC DAC	3
		2
	pdf	
	SNR	

	FIR	
DSP	DTMF	4
		40

1		0
2		0
3		8
		8

1			4
2	FIR		4
3	XX XX IIR		4
			8

1.

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3-5

2.2 CDIO

1	1.1		3	
			3	
	1.2		3	
		DTFT DFT FFT	4	DFT FFT
	1.3		2	
2	2.1	2.1.1	3	
		2.1.3	3	
		2.1.5	3	
	2.2	2.2.2	2	
		2.2.4	3	DFT/FFT
	2.3	2.3.1	2	
		2.3.3	3	
		2.3.4	3	
	2.4	2.4.2	2	
		2.4.4	3	DFT/FFT
		2.4.6	2	
		2.4.7	2	
	2.5	2.5.1	3	

EIP-CDIO

	3.1.1	2	3-5
	3.1.2	-	

3.4



4.



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5.

5.1



6.

6.1



6.2



6.3



6.4



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6.5



6.6

7.

7.1

7.1.1

7.1.2

7.2

7.2.1

7.2.1.1

7.2.1.2



7.2.2



7.3 ()

7.3.1



7.3.2



7.3.3 ()

7.4 ()

7.4.1



7.4.2



7.4.3



7.4.5



7.5 (Java Matlab Labview)

■ Matlab

8.

8.1



8.2

8.2.1



8.2.2



8.2.3



8.3

8.4

()

8.4.1

8.4.2

9.

10.

10.1

10.2

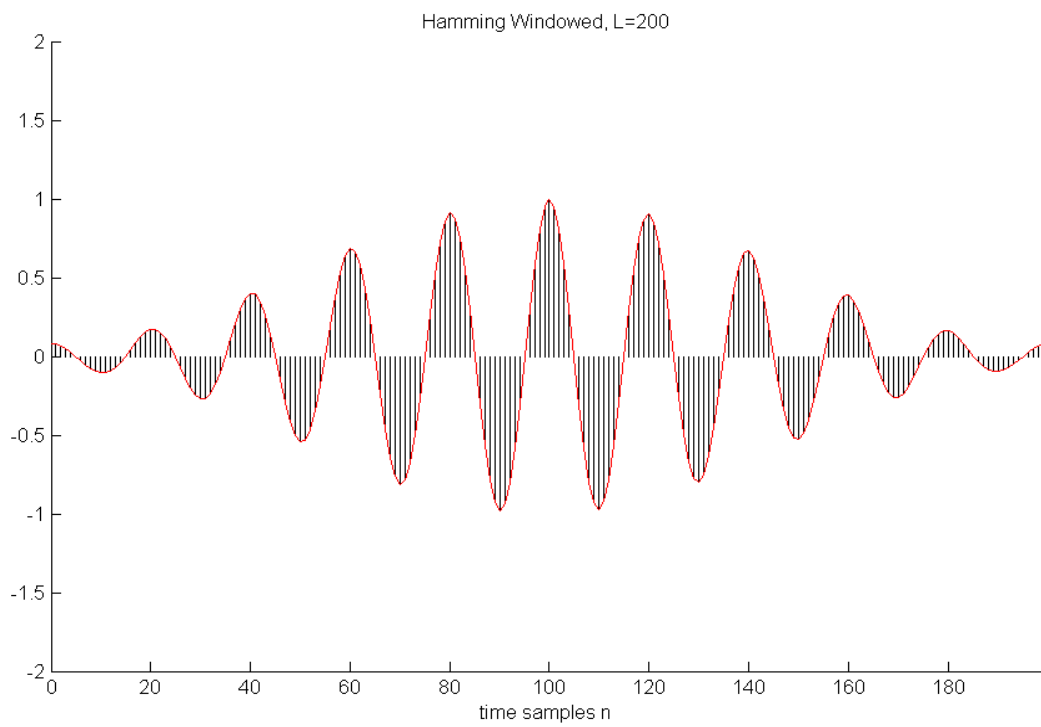
10.2.1

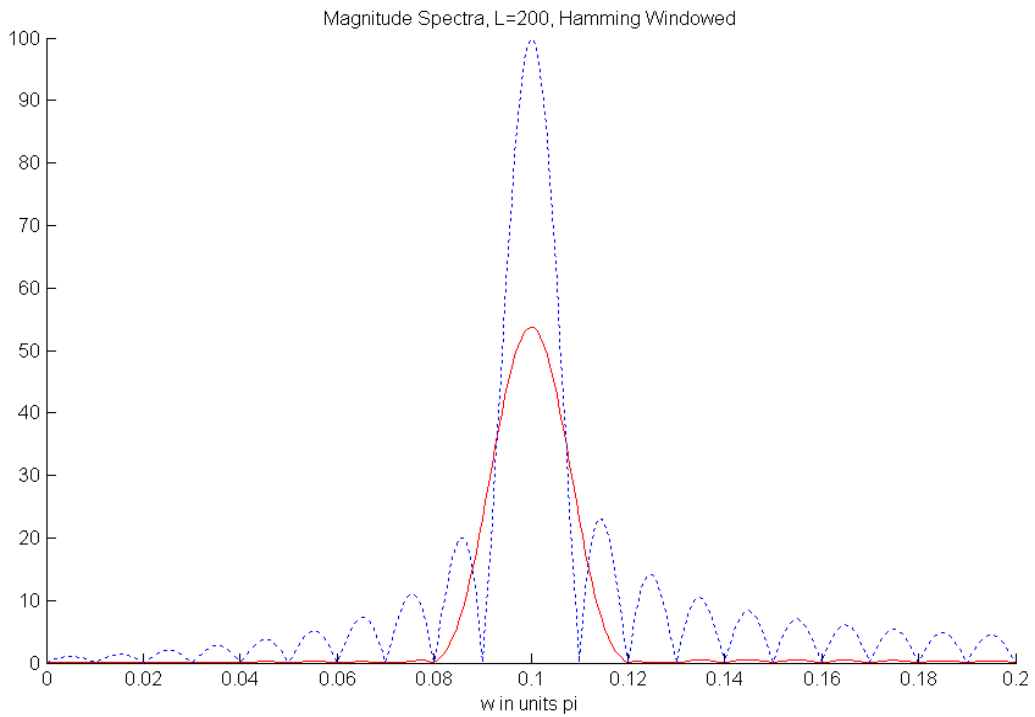
10.2.2

10.2.3

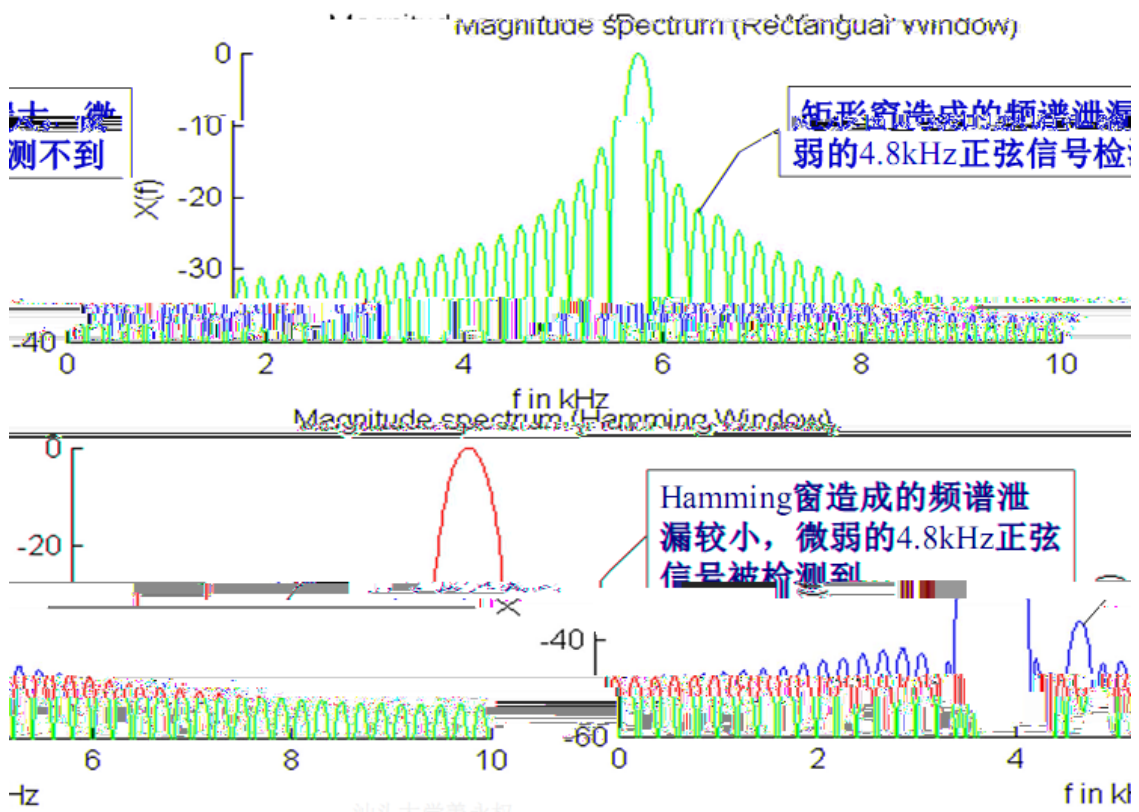
10.2.4

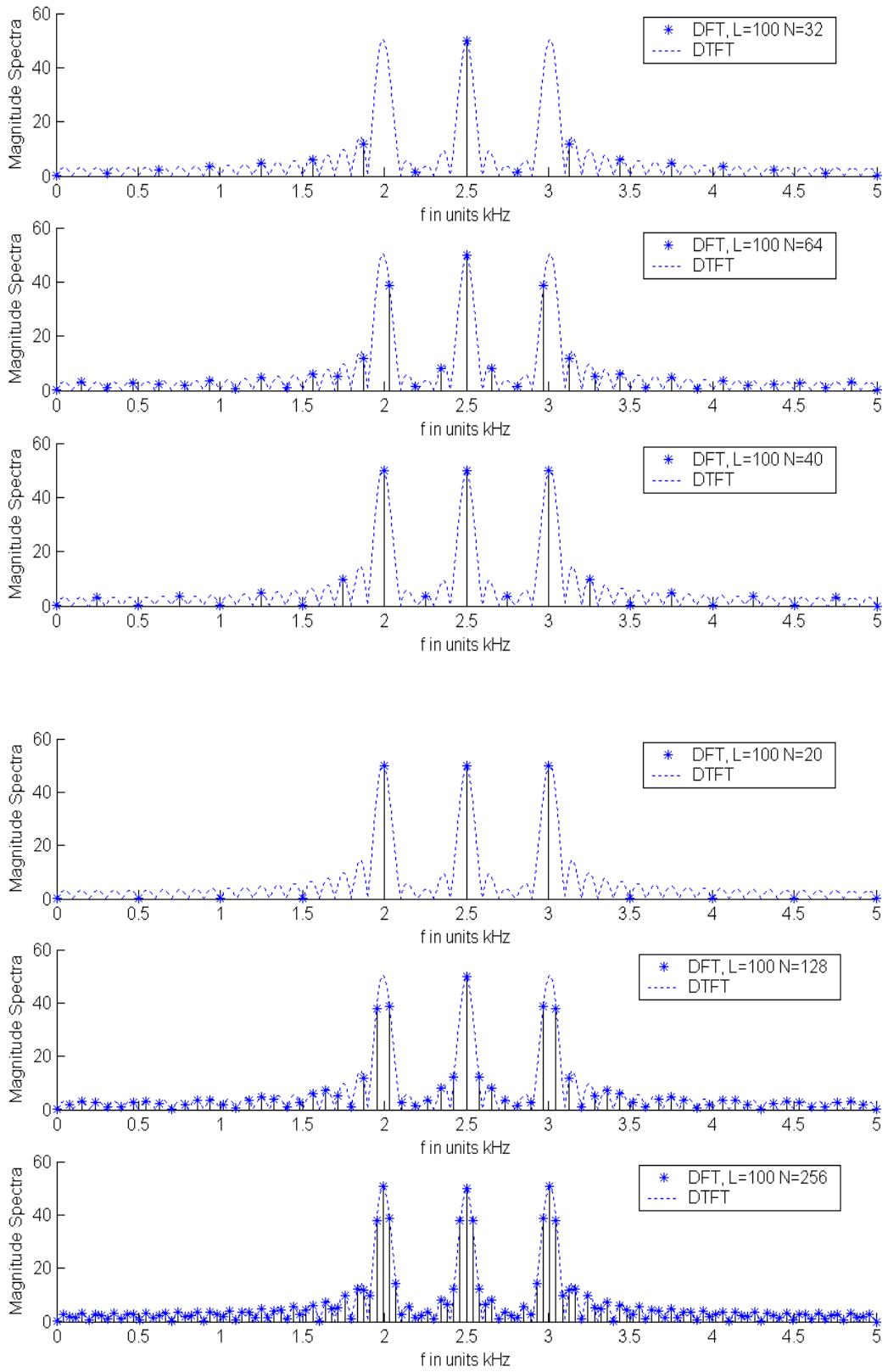
10.3





频谱泄露的危害：小幅度频率分量无法检测到





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电子工程系

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2

2.1

- CTFT



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1		0-10	
2		0-10	
3		0-10	
4	DFT FFT	0-15	
5		0-15	
6		0-15	
7		0-20	
8		0-5	
		0-100	

1.

1.1

FIR

DSP

FIR

1.2

FIR

GSM

FIR

1.3

FIR

1.4

FIR

GSM

DSP

FIR

FIR

FIR

1.5

1)

Kaiser

FIR

FIR

2)

FIR

FIR

Kaiser

3)

FIR

2.

2.1

- 1) LP HP BP BS
- 2) 2.1
- 3) Hamming
- 4) Hamming FIR
- 5) Hamming FIR
- 6) Kaiser
- 7) Kaiser FIR
- 8)
- 9)
- 10) Hamming
- 11) Hamming FIR
- 12)

2.2 CDIO

1	1.1		3	
			3	FIR
	1.2	IDTFT	4	
		IDFT	4	
	1.3	Kaiser	3	Kaiser
2	2.1	2.1.1	3	
		2.1.3	3	
		2.1.5	3	Hamming FIR
	2.2	2.2.2	2	

	2.3	2.2.4	3	Hamming FIR
		2.3.1	2	
		2.3.3	3	Kaiser
	2.4	2.3.4	3	
		2.4.2	2	
		2.4.4	3	FIR
		2.4.6	2	
	2.5	2.4.7	2	
		2.5.1	3	
	3	3.1	3.1.1	2	3-5
3.1.2			2	
3.1.5			2	
3.2		3.2.3	3	
		3.2.4	3	PPT
		3.2.5	3	
		3.2.6	2	2-3 10-15
3.3		3.3.1	1	
4 (CDIO)		4.3	4.3.1	2
	4.3.2		2	
	4.3.3		2	
	4.4	4.4.1	3	
		4.4.3	3	
	4.5	4.5.1	3	
4.5.3		3		
4.6	4.6.1	3		
	4.6.4	3	2-3 10-15	

				2-3
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3.

3.1

■ 3-5

3.2

■

3.3

■

3.4

■

4.

■ —FIR

—

5.

5.1

■

6.

6.1

■

6.2

■

6.3

■

6.4

■ —FIR

—

6.5



6.6

7.

7.1

7.1.1

7.1.2

7.2

7.2.1

7.2.1.1

7.2.1.2



7.2.2



7.3 ()

7.3.1



7.3.2



7.3.3 ()

7.4 ()

7.4.1



7.4.2



7.4.3



7.4.5



7.5 (Java Matlab Labview)
■ Matlab

8.

8.1

■

8.2

8.2.1

■

8.2.2

■

8.2.3

■

8.3

8.4 ()

8.4.1

8.4.2

9.

10.

10.1

10.2

10.2.1

10.2.2

10.2.3

10.2.4

10.3

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电子工程系

_____ :

1

➤ FIR

➤

➤

2

FIR

2.1

FIR

➤

FIR

➤

➤

➤

Kaiser

Equation

2.2

FIR

➤

➤

➤

3

3.1

FIR

➤

LP HP BP BS

➤

2.1

➤

Hamming

➤

Hamming FIR

➤

Hamming FIR

➤

Kaiser

➤

Kaiser FIR

3.2

FIR

➤



Hamming



Hamming FIR



4



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: _____
: _____

1		0-10	
2	FIR	0-10	
3	FIR	0-10	
4	FIR	0-15	
5	FIR	0-10	
6	FIR	0-20	
7	FIR	0-20	
8		0-5	
		0-100	

1.

1.1

IIR
IIR

DSP

IIR

1.2

IIR

1.3

IIR

1.4

IIR
DSP

IIR

IIR
IIR

IIR

1.5

1)

Kaiser

FIR

FIR

FIR

2)

Kaiser

FIR

FIR

3)

2-3

10-15

2-3

2.

2.1

- 1) XX XX IIR
- 2) XX
- 3) XX
- 4) XX
- 5) XX XX IIR
- 6) XX XX IIR
- 7)

2.2 CDIO

1	1.1		3	
			3	FIR
	1.2	IDTFT	4	
		IDFT	4	
	1.3	Kaiser	3	Kaiser
2	2.1	2.1.1	3	
		2.1.3	3	
		2.1.5	3	Hamming FIR
		2.2.2	2	
	2.2	2.2.4	3	Hamming FIR
		2.3.1	2	
	2.3	2.3.3	3	Kaiser

		2.3.4	3	
	2.4	2.4.2	2	
		2.4.4	3	FIR
		2.4.6	2	
		2.4.7	2	
	2.5	2.5.1	3	
3	3.1	3.1.1	2	3-5
		3.1.2	2	
		3.1.5	2	
	3.2	3.2.3	3	
		3.2.4	3	PPT
		3.2.5	3	
		3.2.6	2	2-3 10-15
	3.3	3.3.1	1	
4 (CDIO)	4.3	4.3.1	2	
		4.3.2	2	
		4.3.3	2	
	4.4	4.4.1	3	
		4.4.3	3	
	4.5	4.5.1	3	
		4.5.3	3	
	4.6	4.6.1	3	
		4.6.4	3	2-3 10-15 2-3

3.

3.1

■ 3-5

3.2

■

3.3

■

3.4

■

4.

■ —XX XX IIR —

5.

5.1

■

6.

6.1

■

6.2

■

6.3

■

6.4

■ —XX XX IIR —

6.5

■

6.6

7.

7.1

7.1.1

7.1.2

7.2

7.2.1

7.2.1.1

7.2.1.2

■

7.2.2

■

7.3 ()

7.3.1

■

■

7.3.2

■

7.3.3 ()

7.4 ()

7.4.1

■

7.4.2

■

7.4.3

■

7.4.5

■

7.5 (Java Matlab Labview)

■ Matlab

8.

8.1



8.2

8.2.1



8.2.2



8.2.3



8.3

8.4

()

8.4.1

8.4.2

9.

10.

10.1

10.2

10.2.1

10.2.2

10.2.3

10.2.4

10.3

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电子工程系

_____ :

1

➤ IIR

➤

➤

2 IIR

2.1

IIR

➤ IIR

➤

: s-plane z-plane

➤

➤

Equation

2.2 XX

➤ XX

➤ XX

➤ XX

➤

➤ XX XX IIR

3

➤ XX XX IIR

➤ 2.2 XX

➤ XX

➤ XX

➤ XX XX IIR

➤ XX XX IIR

➤



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: _____
: _____

1		0-10	
2	IIR	0-10	
3	FIR	0-10	
4		0-15	
5		0-10	
6		0-40	
8		0-5	
		0-100	