





化学工艺专业人才培养方案..... 4

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..... 4

1 4

..... 4

..... 4

..... 4

..... 5

..... 6

..... 6

..... 8

2 8

3 9

4 10

5 12

..... 12

..... 12

t 13

..... 13

6 13

7 14

..... 16

..... 16

..... 16

..... 17

..... 18

..... 18

..... 19

..... 19

..... 20

..... 22

..... 22

..... 26

..... 32

..... 39

..... 43

..... 48

..... 56

..... 60

..... 64



.....	67
.....	70
.....	73
.....	77



化学工艺专业人才培养方案



t

t

t



2 t t

3 t t t

4

5

6

7 u

8

- t

10

11 t t

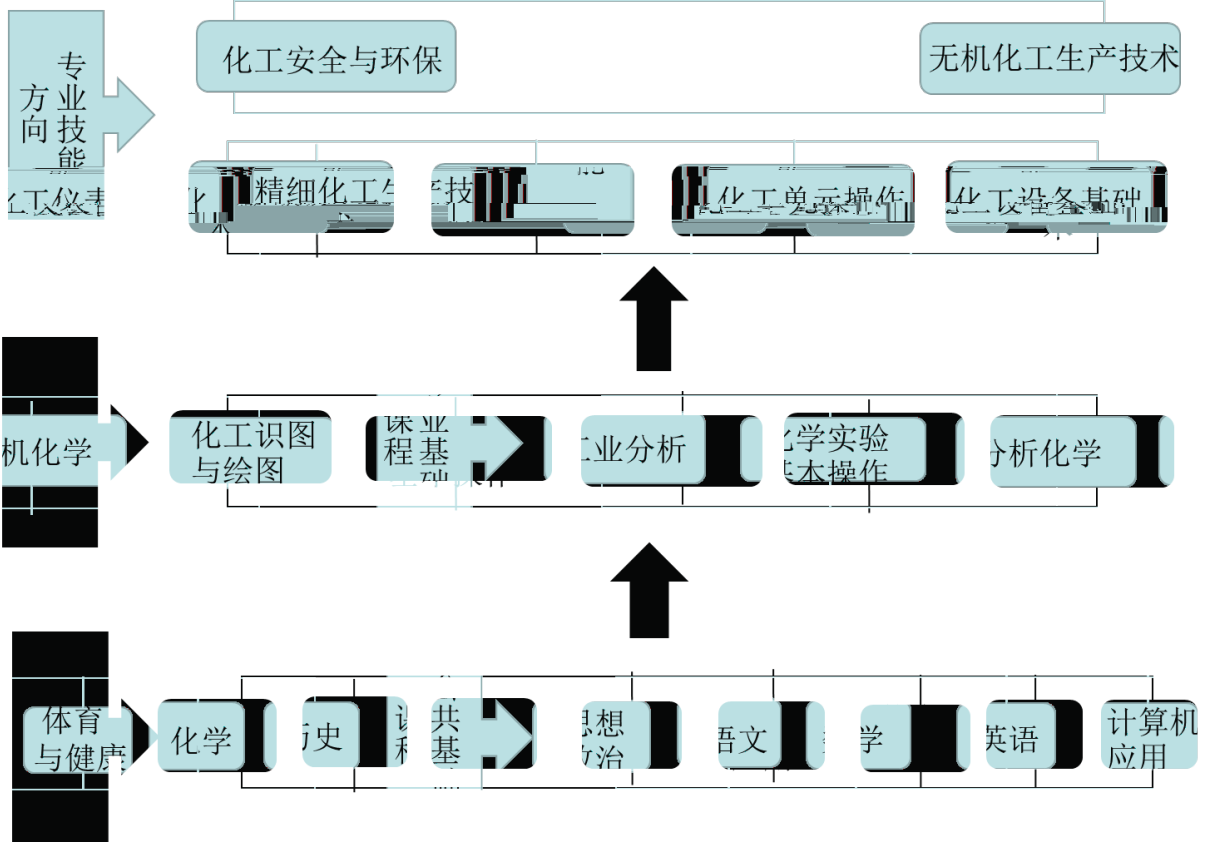
12 t t

13 t

14 t

15 t t

16 t t u



1.



t t t t t t



t t t



u

t

u

2

1

4

t t t u

2

6

t t t t

t

u

3

u



2

1		<p>t t t</p> <p>u</p> <p>t,,</p> <p>... t t</p> <p>t t t</p> <p>t u</p> <p>.</p> <p>/</p> <p>/ t</p> <p>/</p> <p>t</p> <p>u</p>	144 72*2
2		<p>u</p> <p>u</p> <p>t t</p> <p>/</p> <p>/</p> <p>u</p>	144 36*4

3

u

t t t t t

u

t

t



		t t u	
4		u t t t u . 200r300 t u t / u t	36 18*2
5		t u t t t u t t t t t t / t t t t t t t t u	72 36*2
6		t u u ... t t u	180 -0*2
7		t t t t t u u	72 18*4

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1		t t t u	72 18*4
2		u t t t t t u	144 36*4
3		u t u t u	144 36*4
4		u t t u	108 18*6

4

1		t t t - t t t t t u t t t t	324 18*18
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		t t u	
2		t t t t t t t t t t t u	108 18*6
3		t t u	180 18*10
4		t t t t t t t t t u t t t t t t t t u	108 18*6
5		t	36 18*2



		u	
		t	u
6		t	72 18*4
		t	
		u	
7		t	144 18*8
		u	
		t	
		u	

5

1		t	72 18*4
		t	
		u	
		t	
		u	

1.

1 52 40 12 u 26 / 40 /

3060u

2 30 / 6 u

2

18 1 170

t t t 1 1 5 u

3

828 144 144 144



36 72 72 36 180

u

4

2232

6

6

5.

1854

60.5 %

6.

t u

6

	15	18	18		17	85
t	2					2
					1-	1-

1

1



2021

		<; M2	36	36	4					4		5			2.35%
		<; M3		600	20						30	6			1-.61%
	t	<; M4		60	2							1			1.-6%
		<; M5		30	1							4			0.-8%
	/	<; M6		30	1							5			0.-8%
			1206	1854	154	26	26	26	26	26	30	/			100%



26 - „ ... 15
 7 u

1.

1 4

š <š <š <

u

40

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1

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10



6				6	
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3 2

š

<tš

<tš

<tš

<tš

<

758

u



	PPT
	3D

1. t t t t
t t

2t u t t
t t t u

3 u " ...
t t

4t
" t .u

5t " ... " ...
... t

u
6t
u

1. t u



()

()

2

t

t t t

3t

t

t

t

t

4t

t 1+L

u

u

t

t

t

t

t

t

t

u

5	
6	t
7	
8	
9	



1	t	5
2	t	5 7
3		5
4		5
5	t t t t	5
6		6 7
7	t t t	7 9
8		6 7 9

1	t	1.1	
		1.2	
		1.3	
2		2.1	
		2.2	
		2.3	

t t

u u

t t t t

t u

u



t t t t
u u t u
t u t t u
u



1

1

2

3

4

5

2

1

2

3

4

3

1

2

3

4



5

72

4

1		1. 2 3		18
2		1 2		16



		3		
		4		
		5		

1

pH

pH

2

pH

3

pH

pH

pH

3

4

5



3.

1

2

3

4.

1

2

3

4

5

1



1

2

3

4

5

6

7

2

1

2

3

4

5

3

1

2

3

4

5

144

8



1			1. 2. 3.	20
2			1. 2.	20
3			1. 2.	18

H202



7				38

1.

1

2

3

2.

20 % +

20% +

60%

1	1-1	60	A	20%	
	1				
	10	2	10		91-100
	2				
	3)	10	B		
	10				



	4	0.5		
	2			81-90
	5			C
	30 /			3
	10 /			
	1-2	40		79-80
	1			
	2			D
	1 /			3
	3			
	10 /			60
	4	2 /		
		0.5 /		
	5	20 /		

2-1

1

2

3

2



	7		D.		
	2-2			50	
	1				
	2				
	3				
3			A. AB		
			B.		60%
				20%	
			60%		20%
			C. AB	3	
				20%	
	20%+	20%+	60%		

/			

3.





	2.
	3.
	4.
	5.
1.	2.
	3.
	4.
	5.
	1.
2.	
3.	
4.	
5.	

72

4

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1		1. ; 2. ; 3. ; 4.	1. : ; 2. : , ; ; 3. ; 4. ; 5. 6.	4
2		1. ; 2. ;	1. , ; 2. ; 3. ; 4. ; 5. , , ; 6.	4
3		1. 2.	1. : ; 2. : ; 3. ; , ; 4. , ; 5.	4



4		<p>1. ;</p> <p>2. pH pH</p> <p>, pH ;</p> <p>3.</p> <p>;</p> <p>4.</p>	<p>1. : ;</p> <p>2. : pH</p> <p>3. pH</p> <p>4. , ;</p> <p>5. , ;</p> <p>6. , ,</p>	4
5		<p>1.</p> <p>2.</p> <p>;</p> <p>3.</p>	<p>1. ,</p> <p>2.</p> <p>3. ;</p> <p>4.</p>	6
6		<p>1. ;</p> <p>2.</p> <p>;</p> <p>3.</p> <p>4.</p>	<p>1.</p> <p>2.</p> <p>3.</p> <p>4. ,</p>	14
7		<p>1.</p> <p>2.</p>	<p>1. ;</p> <p>2.</p> <p>;</p> <p>3. , ,</p>	2



8		1. ; 2. ;	1. ; 2. ; 3. ; 4. ,	4
9		1. ; 2. ; 3.	1. ; 2. ; 3. , 4. , ,	6
10		1. 2. 3.	1 2. ; 3. , , ,	12
11		1. 2. 3. ,	1. , 2. , ; 3. , ; 4. , ,	8



12		1. ; 2.	1. 2. 3. 4.	4
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1

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,

,

:

1).

2).

3).

4).

5).

6).





2).

3 .

4).

5

1

1

2



3

2

1

2

3

4

5

3.

(1)

(2)

3

4

144

8

1		1. 2. 3 4		72



		5 6		
2		1. 2. 3.		48
3		1. 2. 3.		14



4		1. 2 3		10

1.

2.

40

60

3.



1

2

4.

1.

1

2

3



4

2.

1

2

3

4

5

6

7

8

9

10)

(11)

(12)

3.

1

2

3

4

5

6

72

4

--	--	--	--	--



2021

1				10
2				8
3				10
4				8
5				6

6



2.

20 % +

20% +

60%

1	1-1	60	A	20%		
	2					
	10	2			10	
	2				91-100	
	3)				10	
	10					
	4				0.5	
	2					81-90
	5					
		30			/	
	10	/				
	1-2	40	B			
	6					
					79-80	
	7					
		1			/	
	8					
		10			/	
	9				2	/
					0.5	/
	10				20	/
2	2-1		A.	20%		
	1					
			100			



	2			
	3		B.	
	4		80	
	5		C.	
	6		60	
	7		D.	
	2-2		50	
	3			
	4			
	3			
3			A. AB	
			B.	
			20%	60%
			60%	20%
			C. AB	3
			20%	
		20%+	20%+	60%



...			

3.

5

4.



◆

◆

3

◆

◆

◆

◆

◆

324

18

1			1. 2. 3. 4. 5.	54
2			1.	36



			2. 3. 4. 5.	
3			1. 2. 3. 4.	20
4			1. 2. 3. 4.	24



5			1. 2. 3. 4. 5.	22
6			1. 2. 3. 4. 5.	70
7			1. 2.	58



			3.	
			4.	
			5.	



(3)

(4)

(5)

2.

20	60		20	
			<ul style="list-style-type: none">• • • •	20%



			<ul style="list-style-type: none">••	
			<ul style="list-style-type: none">••••••••••••••••	50%
			<ul style="list-style-type: none">••	20%



			<ul style="list-style-type: none">••		3
--	--	--	---	--	---

3.

4.

1

1

2

3

4

2

1



- 2
- 3
- 4
- 3**
- 1
- 2
- 3
- 4
- 5
- 6

- 180

- 10

1		1. 2. 3.	1 2. 3.	25
2		1. 2. 3.	1 2. 3.	25



3		1. 2. 3. 4.	1 2. 3.	25
4		1. 2. 3.	1 2.	15
5		1. 2.	1. 2.	15
6		1. 2. 3.	1. 2. 3.	25
7		1.	1.	50



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2.



2.

1)

2)

40%

40

60%

20

3.

1

2

4.

—



1

1

2

3

4

2

1

2

3

4

3

1

2

3

4

108

6

1		1. 2. 3. 4.	1. 2.	12



2		1. 2. 3.	1. 2. 3. 4.	56
3		1. 2. 3.	1. 2. 3.	20
4		1. 2. 3. 4.	1. 2. 3. 4. 5.	20

1.



2.

(1)

2

2

60

50

80

50

90

3.

1

2

4.

1

2

3

4

5



1



2



3





72

4

1			1. , 2. (PPT) 3. 4.	48
2			1. , 2. (PPT) 3.	8
3			1. , 2. (PPT) 3.	8
4			1. , 2. (PPT)	8



			3.	

1.

2.

20

60

20

				20%
				60%



			3	20%

3.

4.

;

;



36

2

--	--	--	--	--





()

1.

2.

$$(10\%) = (50\%) + (50\%)$$
$$(10\%) \quad (10\%) \quad (15\%) \quad (15\%)$$

()

1.

2.

()

()

1.

2.



1

1

2

3

2

1

2

3

AutoCAD

3

1

2

3

108

6

1		1. 2.	1. 2.	42



		3. 4. 5. 6. 7.	3. 4. 5. CAD	
2		1. 2. 3. CAD	1. 2. CAD	30
3		1. 2. 3.	1. 2. CAD 3.	36

1.



2.

(1)

50

50

2

60

80

90

3.

1

2

AutoCAD

3

4.



1

1

2

3

4

5

6

7

8

2

1

2

3

4

3

1

2

3

4

5

6

7

108



6

1		1. 2. 3. 4. 5. 6. 7.	3. 4. 5. 6.	16
2		1. 2. 3. 4. 5.	1 2	16
3		1. 2. 3. 4. 5.	1. 2. 3.	10
4		1. 2. 3. 4.	1. 2. 3.	20



5		1. 2. 3. 4. 5.	1. 2. 3.	16
6		1. 2. 3. 4. 5.	1	6
7		1. 2. 3.	1 2	10
8		1. 2. 3.	1.	8
9				6

1.



1



2



3



600

20



1			1.	50
2				400
3				150

1.

2.



				10%
			1	40%
			(2)	
			1	30%
			2	



				20%

3.

4.

1: 16-1: 20

1.

1

2

3

4

5

6

2.

1

2

3

