

Program for Communication Engineering

1. Target

This major cultivates a solid foundation in mathematics and natural sciences, good humanistic literacy, familiarity with theories of modern communication systems and signal processing, knowledge of communication technologies, communication systems, and communication networks, and the latest developments and developments in communication technologies with the ability to solve complex engineering problems, strong sense of innovation, good teamwork quality, senior engineering technical personnel who can engage in scientific research, technology development, engineering design, product manufacturing and operations in the fields of communications and electronic engineering. For students with strong learning ability and research ability, they can engage in higher-level learning and research in first-class universities or research institutions abroad.

2. Requirement

The graduates of this major are required to master the basic theory, composition principles and design methods of communication systems and communication networks and signal processing, have solid theoretical knowledge and basic communication engineering practice, and have the ability to engage in communication systems and communication network Design, open

The basic capabilities of development, commissioning and engineering application can solve complex engineering problems in related fields. Have good moral cultivation; have noble moral sentiments. Students are trained according to the broad communication electronic information in the first academic year, and professional diversion is conducted at the beginning of the first semester the second academic year, and then trained according to the major.

Graduates should acquire the following knowledge and abilities:

1. Engineering knowledge: able to use mathematics, natural sciences, engineering foundation and professional knowledge to solve complex engineering problems.

2. Problem analysis: Ability to apply basic principles of mathematics, natural sciences, and engineering sciences to identify, express, and analyze complex engineering problems through literature research to obtain effective conclusions.

3. Design/development solutions: able to design solutions to complex engineering problems, design systems, units (components) or process flows that meet specific needs, and be able to reflect innovation awareness in the design process, considering health, safety, Legal, cultural and environmental factors

4. Research: Ability to study complex engineering problems based on scientific principles and scientific methods, in design experiments, analysis, and interpretation
According to the data, and through information synthesis to obtain a reasonable and effective conclusion.

5. Use modern tools: be able to develop, select and use appropriate technologies, resources, modern engineering tool information technology tools for complex engineering problems, including prediction and simulation of complex engineering problems, and be able to understand their limitations.

6. Engineering and society: able to conduct reasonable analysis based on engineering related background knowledge the impact of professional engineering practices and complex engineering problem solutions on society, health, safety, culture, and understand the responsibilities that should be assumed.

7. Environment and sustainable development: able to understand and evaluate the impact of engineering practices on engineering issues on environmental and social sustainable development.

8. Professional norms: with humanities and social science literacy and social responsibility, able to understand and apply engineering professional ethics and norms in engineering practice, and perform responsibilities.

9. Individual and team: Ability to assume the roles of individual, team member and person in charge in a team with a multidisciplinary background

10. Communication: Ability to effectively communicate and communicate with industry peers and the public on communication engineering issues, including writing reports and design manuscripts, making statements, expressing or responding to them. And have a certain international vision, able to communicate and exchange in a cross-cultural background.

11. Project management: understand and master engineering management principles and economic decision-making and can be applied in a multi-disciplinary environment.

12. Lifelong learning: have the consciousness of independent learning and lifelong learning, and have the ability to continue to learn and adapt to development.

3. Length of schooling, graduation credits, award degree

Length of Schooling: 4 year

Graduation minimum credits: 170 credits

award a degree: Bachelor of Engineering

4. Curriculum and credit distribution

(1) General education courses (48 credits)

Requirement: Compulsory courses in general education, 34 credit; optional courses in general education, 12 credit.

(2) Basic courses (43 credits)

Requirement: Full discipline basic courses, totally 43 credits.

(3) Professional education courses (78 credits)

Requirement: theoretical course 62 credits, including 33 credits for practical courses; Optional professional courses, 16

(4) Additional course (3 credits)

Requirement: totally 3 credits.

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Category	Course number	Course Name	Credit	Hour	By course hours				examining way	By semester			
					Theoretical	operating	experiment	practice		1	2	3	4
General Education	WL51001*	Physical Education	4	128	128				exam	2	2	2	2
	GJ11001*	Chinese A	12	192	192				exam	√	√		
	GJ11002*	Chinese B	6	96	96				exam	√	√		
	GJ12005*	Introduction to China	6	96	96				examine		√	√	
	XX310020	Computer Foundation	2	32	26	6			exam	2			
	XX110170s	Experiments of Advanced Programming	1	32			32		examine		2		
	XX110590	Advanced Programming Languages	3	48	48				exam		3		
	XX310010	Computer Application Skills	0	16	6	10			examine				
Total credits required: 34; total subjects required: 14.													
Basic courses	WL21051*w	Advanced Mathematics D	10	160	160				exam	5	5		
	WL210490w	Linear algebra	2	32	32				exam			√	
	WL210480w	Probability and Statistics	3	48	48				exam				√
	WL31001*w	College Physics	6	96	96				exam		3	3	
	XX220500	Introduction to Electronic Engineering	1	16	16				examine		2		
	WL210130	Complex variable function and integral transformation	3	48	48				exam			3	
	WL320040	Physical Experiment	1.5	48			48		examine			3	
	XX210070s	Electrocircuit Analysis Principle Experiment	0.5	16			16		examine			1	
	XX210190	Digital Circuit	3	48	48				exam			3	
	XX210190s	Digital Circuit Experiment	0.5	16			16		examine			1	
	XX210410	Electrocircuit Analysis Principle	3.5	56	56				exam			4	
	WL210570	Mathematical Experiments	2	32	24		8		exam				2
	XX210320s	Linear Electronic Circuit Experiment	0.5	16			16		examine				1
	XX210390	Signals and Systems	3	48	48				exam				3

XX210390s	Experiments of Signals and Systems	0.5	16			16		examine				1
XX210400	Linear Electronic Circuit	3	48	48				exam				3
Total credits required: 43; total subjects required: 18.												

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Category	Course number	Course Name	Credit	Hour	By course hours				examining way	By semester			
					Theoretical	operating	experiment	practice		1	2	3	4
Compulsory Professional education courses	XX210560	Modern Microcomputer Principle	2	32	32				exam			2	
	XX210560s	Modern Microcomputer Principle Experiment	0.5	12			12		examine			1	
	XX210260	Network Communication	2.5	40	40				exam				3
	XX210260s	Network Communication Experiment	0.5	16			16		examine				2
	XX210520	Introduction to Underwater Communication Technology	2	32	32				exam				2
	XX210520s	Underwater Communication Technology Experiment	0.5	12			12		examine				1
	XX210060	Electromagnetic Fields and Waves	3	48	48				exam				
	XX210120	Non-Linear Electronic Circuit	3	48	48				exam				
	XX210120s	Non-Linear Electronic Circuit Experiment	0.5	16			16		examine				
	XX210210	Digital Signal Processing	2.5	40	40				exam				
	XX210210s	Digital Signal Processing Experiment	0.5	16			16		examine				
	XX210240	Communication Principles	3	48	48				exam				
	XX210240s	Communication Principles Experiment	0.5	16			16		examine				
	XX210270	Microwave Technology and Antenna	3	48	40		8		exam				
	XX210310	Modern Switching Technology	3	48	40		8		exam				
	XX210360	Mobile Communication Principle	2	32	32				exam				
Total credits required: 29; total subjects required: 16.													

WG120030	Engineering drawing	2	32	32				examine	2			
XX220150	Application of IC	2	32	18		14		examine				2
XX220200	Digital Image Processing	2	32	18		14		examine				2
XX220230	Scientific English on Communication & Electronic Information	2	32	32				examine				2
XX220340	Matlab Programming and Engineering Application	2	32	20		12		examine				2

Optional Professional education courses	XX210250	Image Communication Technology	2	32	32				exam				
	XX210300	Principle of Radio Navigation	2	32	26		6		exam				
	XX210380	Principles of Wireless Communications	2	32	32				exam				
	XX210420	Information theory and coding	2	32	32				exam				
	XX220080	Television Principle	2	32	32				examine				
	XX220290	Satellite Communication	2	32	32				examine				
	XX220460	TD-LTE network protocol and signaling	3	48	36		12		examine				
	XX220470	TD-LTE network optimization technology	3	48	36		12		examine				
	XX220480	TD-LTE network devices and functions	3	48	36		12		examine				
	XX220490	TD-LTE principle and key technology	3	48	36		12		examine				
	XX220510	Modulation and demodulation technology for underwater communication	3	48	36		12		examine				
	XX220530	Design of Underwater Communication Equipment	2	32	32				examine				

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Category	Course number	Course Name	Credit	Hour	By course hours				examining way	By semester			
					Theoretical	operating	experiment	practice		1	2	3	4
Optional Professional education courses	XX220540	The principle of underwater communication channels analysis	3	48	36		12		examine				
	XX220550	Underwater Communication Network	2	32	32				examine				
	QT320020	Information retrieval	1	24	10		14		examine				
	XX220130	Fibre-optic Communications	2	32	26		6		examine				
	XX220180	Database Technology	2	32	26	6			examine				

Total credits required: 49; total subjects required: 16.

	QT727010	Metalworking internship	1					1w	examine		√		
	XX227040	Electronic Instrument Practice	1					1w	examine			√	
	XX227220	Project of Modern Microprocessor Principle	1					1w	examine			√	
	XX227010	Project of Digital Circuit	1					1w	examine				√

Practice

XX227190	Electronic PCB Design	2					2w	examine				
XX227230	Project of Underwater Communication Technology	1					1w	examine				
XX227030	Project of Analog Electronic Circuits	1					1w	examine				
XX227240	Electric Craft	1					1w	examine				
XX227050	Project of Integrated Electronic Design	1					1w	examine				
XX227090	Information Transmission&Processing System Experimentation	2					2w	examine				
XX227200	4G mobile communication network maintenance training	2					2w	examine				
XX227210	4G mobile communication network optimization training	3					3w	examine				

XX227180	Graduation Project	16					16w	exami ne				
Total credits required: 33; total subjects required: 13.												
Additional course credits required: 3.												

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Innovation	Compulsory with at least 1 credit.
Shipping	Compulsory with at least 2 credit.
Others	Choosing from courses of Art and culture, Economics & management, science & technology, Innovation
Total credits required 12, covering three categories.	

Credit hour Ratio	Course category	Hour	%	Credit	%	Weekly school hours	1	2	3	4
	Compulsory general education	640	27.4	34	20.0		13	19	5	2
	Major fundamantion	744	31.8	43	25.3		5	10	20	13
	Compulsory specialized	504	21.6	29	17.1				3	8
	Optional specialized	256	11.0	16	9.4	In semester				
	Practical teaching			33	19.4					

	additional			3	1.8				
	Optional general education	192	8.2	12	7.1	In semester			
	Total	2336	100	170	100		18	29	28

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Prerequisite	Number	Name	Prerequisite course
	XX210400	Linear Electronic Circuit	Electrocircuit Analysis Principle
	XX210120	Non-Linear Electronic Circuit	Electrocircuit Analysis Principle
	XX210390	Signals and Systems	Electrocircuit Analysis Principle, Complex variable fun
	XX210560	Modern Microcomputer Principle	Advanced Programming Languages
	XX210210	Digital Signal Processing	Signals and Systems
	XX210240	Communication Principles	Signals and Systems
	XX210310	Modern Switching Technology	Communication Principles, Digital Circuit
	XX210270	Microwave Technology and Antenna	Electromagnetic Fields and Waves
	XX220480	TD-LTE network devices and functions	Communication Principles, Digital Circuit, Network Com Modern Microcomputer Principle
	XX220490	TD-LTE principle and key technology	Communication Principles, Network Communica
	XX220530	Design of Underwater Communication Equipment	Digital Circuit, Modern Microcomputer Principle Cour:
	XX220510	Modulation and demodulation technology for underwater communication	Communication Principles
	XX220540	The principle of underwater communication channels analysis	Communication Principles
	XX220550	Underwater Communication Network	Network Communication
XX220460	TD-LTE network protocol and signaling	Communication Principles, Network Communica	
QT320020	Information retrieval	Fundamentals of Computers	
XX220470	TD-LTE network optimization technology	Communication Principles, Network Communica	

The English version is for reference only. The Chinese version shall be subject to.

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