Appendix A-13: Undergraduate talent training program for Electronic Information Engineering in 2023

Major code: 080701

Professor Jiang Dongchu

I. Training objectives

With the needs of the national strategy and the economic development of regional information manufacturing industries, this major deeply practices the mission of cultivating virtue and nurturing talents, while promoting the all-round development of morality, intelligence, physique, aesthetics, and labor. It aims to cultivate high-quality professionals who master modern electronic technology theory, electronic information system design, and application development, as well as possess capabilities in signal processing and hardware design and programming of electronic information systems. Graduates will be able to work in fields such as information communication, electronic technology, and intelligent control, engaging in product design, process manufacturing, application development, and technical management of various electronic devices and information systems. The specific objectives for students after 5 years of graduation are as follows.

Objective 1 (Moral Education): Students of the Program should have understand the current social model in China, abided by social norms, professional ethics and ethical norms in engineering practice, and actively served the country and society by considering public interests.

Objective 2 (Mathematical and Physical Foundation): Students of the Program should have grasped the basic knowledge of mathematics and physics and other natural sciences, laid a solid foundation for subsequent courses, and been able to use the learned knowledge to solve complex engineering problems.

Objective 3 (Basic professional ability): Students of the Program should have a wide range of basic engineering and professional knowledge, so as to lay a solid foundation for future professional course study..

Objective 4 (Professional ability): Students of the Program should have learned professional knowledge to solve complex engineering problems in the field of

electronic information, gotten skills to investigate, design, analyze and propose solutions for complex engineering problems in relevant fields, been competent in the research and development, production, sales and management of electronic information system products, and possessed certain innovation awareness and innovation ability.

Objective 5 (Comprehensive quality): Objective of comprehensive quality: Students of the Program should have been provided with comprehensive knowledge conducive to career development, the ability to adapt to social development and cross-cultural international cooperation and communication skills, and developed comprehensively in morality, intelligence, physique, aesthetics and labor.

Objective 6 (Lifelong Learning Ability): Students of the Program should have tracked the development trend of related fields in electronic information, mastered state of the art knowledge and skills in this field, with the awareness of independent learning and lifelong learning, and further self-development through job training.

II Basic requirements for graduation

Graduates of this major love their motherland, have a correct world outlook, outlook on life and values, abide by laws and regulations, unite and cooperate, love their jobs, be willing to contribute, and at the same time possess the following knowledge, ability and quality.

Graduation requirement 1 (Engineering knowledge): Be able to use mathematical, physical, engineering and professional knowledge to express, analyze, derive, compare and evolve complex engineering problems in information communication, electronic technology, intelligent control and other fields.

Indicator 1.1: Have mathematical knowledge and basic engineering knowledge to understand and describe complex engineering problems in the fields of information communication, electronic technology and intelligent control.

Indicator point 1.2: Have mathematical knowledge, basic knowledge of electronics, information and computer, can abstract modeling and solution of electronic information devices, equipment and systems.

Indicator point 1.3: Be able to use electronic, information and other professional knowledge to analyze and deduce complex engineering problems in the field of electronic information.

Indicator point 1.4: Can comprehensively use engineering knowledge to

compare and evaluate the design scheme of electronic circuit, signal processing and transmission system.

Graduation requirement 2 (problem analysis): able to apply mathematics, natural science, electronic science and information science principle, identification, expression and analysis of complex engineering problems in the field of information communication, electronic technology and intelligent control through literature research, and obtain effective conclusions.

Indicator point 2.1: Be able to use the basic principles of natural science, electronic science and information science to identify the appearance and key components, modules, equipment and programs of complex engineering problems in the fields of information communication, electronic technology and intelligent control.

Indicator point 2.2: For complex engineering key components, modules, equipment and programs in the fields of information communication, electronic technology and intelligent control, they can use electronic science, information science, mathematical modeling methods and program flow charts to express them reasonably.

Indicator point 2.3: Through literature research, can understand the alternative problem solutions, and can draw effective conclusions through the analysis of the influencing parameters involved in key components, modules and equipment.

Graduation requirement 3 (Design/Develop Solutions): Be able to design solutions for electronic circuits, signal processing and transmission systems that meet user requirements, design unit circuits, functional modules, equipment design schemes and programs that meet the requirements of the solutions, and demonstrate innovative awareness in the design.

Indicator point 3.1: Can develop unit circuits, functional modules and program flows that meet specific requirements according to functional requirements.

Indicator point 3.2: For complex engineering problems in information and communication, electronic technology, intelligent control and other fields, it can propose system solutions, determine design objectives, technical requirements, development cycle and process, etc.

Indicator point 3.3: Able to apply electronic and information related knowledge to evaluate, optimize and improve the design/development solutions, and reflect innovation awareness.

Graduation Requirement 4 (Research): Be able to utilize principles of mathematics, natural sciences, engineering fundamentals, electronic science, principles of information science, and scientific methods to conduct research on complex engineering problems in the fields of information communication, electronic technology, and intelligent control, including designing experiments, analyzing and interpreting data, and drawing reasonable and effective conclusions through information synthesis.

Indicator point 4.1: Solutions for complex engineering problems in the fields of information and communication, electronic technology and intelligent control can be determined based on scientific principles to determine experimental objectives and methods and design experimental schemes.

Indicator point 4.2: Be able to select, build or develop hardware and software experimental environment for electronic circuits and signal processing and transmission systems, conduct experiments and record and organize experimental data.

Indicator point 4.3: Able to statistically analyze and interpret experimental data, and draw reasonable and effective conclusions through information synthesis.

Graduation requirement 5 (Use of modern tools): Be able to use, select and develop appropriate technologies, resources, electronic measuring instruments and simulation software tools for complex engineering problems in the fields of information communication, electronic technology and intelligent control, including simulation analysis and prediction of complex engineering problems, and understand their limitations.

Indicator point 5.1: Be able to use commonly used modern electronic measuring instruments, simulation software and information technology tools to measure, analyze and design typical modules and systems in electronic information engineering practice, and understand their characteristics.

Indicator point 5.2: In the analysis, design and research of electronic circuits, signal processing and transmission systems, appropriate information technology tools, electronic measuring instruments and simulation software tools can be obtained and selected for testing, calculation and simulation.

Indicator point 5.3: For specific objects of complex engineering problems in the field of information and communication, electronic technology and intelligent control, they can simulate and predict by selecting and developing modern tools to meet

specific requirements, and understand and analyze their limitations.

Graduation requirement 6 (Engineering and Society): Be able to apply industrial policies, industry standards and relevant laws and regulations of electronic information industries to engineering practice; be able to evaluate the impact of solutions to complex engineering problems in the fields of information communication, electronic technology and intelligent control on society, health, safety, law and culture, and understand the responsibilities to be undertaken.

Indicator point 6.1: Have the experience of engineering internship and social practice, and understand the operation mode of relevant enterprises in the electronic information industry.

Indicator point 6.2: Be able to apply technical standards, intellectual property rights, industrial policies and quality management systems related to electronics, information and computer fields to engineering practice for complex engineering problems in information communication, electronic technology and intelligent control fields.

Indicator point 6.3: Be able to objectively analyze and evaluate the impact of the development, production and operation of new products, technologies and processes on society, health, safety, law and culture, and understand the responsibilities to be undertaken.

Graduation requirement 7 (Environment and Sustainable Development): able to understand and evaluate the impact of engineering practices on environmental and social sustainability in response to complex engineering problems in the fields of information and communication, electronic technology, and intelligent control.

Indicator point 7.1: Understand the connotation and significance of environmental protection and social sustainability.

Indicator point 7.2: Familiar with environmental protection laws and regulations, able to understand the relationship between electronic and information engineering practices and environmental and social sustainability.

Indicator point 7.3: Solutions to complex engineering problems in the fields of information and communication, electronic technology and intelligent control can be evaluated for resource efficiency, pollutant disposal schemes and safety precautions, and the potential damage to human beings and the environment during the product life cycle can be assessed.

Graduation requirement 8 (professional norms): have humanistic and social

science literacy, have a correct outlook on life and the world

They should have a sense of morality, understand the core socialist values and abide by professional ethics, be honest and trustworthy, and have a sense of responsibility.

Indicator point 8.1: Have humanistic and social science literacy, have a correct outlook on life, world view and moral view, understand the core socialist values and abide by professional ethics norms, be honest and trustworthy, and have a sense of responsibility.

Indicator point 8.2: Understand the core socialist values, understand the national conditions, be able to safeguard national interests, and have a sense of social responsibility.

Indicator point 8.3: Understand the core concept of engineering ethics, and be able to abide by professional ethics and norms in the development, experiment and production practice of electronic information projects, and fulfill the corresponding responsibilities.

Graduation requirement 9 (individual and team): able to assume the role of individual, team member and leader in a multidisciplinary team, with organizational management ability, interpersonal communication ability, academic communication ability and team cooperation ability.

Indicator 9.1: Can take the initiative to work with members of other disciplines.

Indicator point 9.2: Able to perform the role and responsibilities of team members, listen to the opinions of other team members, and cooperate to complete team tasks.

Indicator point 9.3: Able to build a team according to the characteristics of tasks and personnel, understand the role division and responsibilities in the team, and manage and coordinate the operation of the team.

Graduation requirement 10 (Communication): Be able to communicate and exchange effectively with peers in the industry and the public on complex engineering problems in the field of electronic information engineering, including writing reports, designing documents, making presentations, expressing or responding to instructions clearly, and having a certain international perspective to communicate and exchange in a cross-cultural context.

Indicator point 10.1: Able to write reports and documents with standard format, clear logic and accurate language according to theoretical and technical research and

engineering practice needs in electronic circuits, signal processing and transmission systems, and make electronic materials convenient for demonstration and communication.

Indicator 10.2: Able to read foreign language materials in this major, able to express and respond to professional issues, and have basic cross-cultural background communication skills.

Indicator point 10.3: Have good expression and communication skills, and be able to communicate and exchange complex engineering problems in the field of electronic information through oral or written means.

Graduation requirement 11 (Project Management): Understand and master the principles of engineering management and economic decision-making methods, and apply them in a multidisciplinary environment.

Indicator point 11.1: Master the engineering management principles and basic economic decision-making methods involved in electronic information engineering projects.

Indicator point 11.2: In multidisciplinary engineering practice, time and cost management, quality and risk management, human resource management can be applied to the management of electronic information engineering projects.

Indicator point 11.3: Can comprehensively apply the principles of engineering management and economic decision-making methods to the development, design and optimization of electronic circuits, signal processing and transmission systems.

Graduation requirement 12 (lifelong learning): Have the awareness of independent learning and lifelong learning, and have the ability to keep learning and adapt to social development.

Indicator point 12.1: Be able to correctly understand the current situation and development trend of electronic and information science, and have the awareness of independent learning and lifelong learning.

Indicator 12.2: Have a knowledge base for lifelong learning, be able to master the methods of independent learning, and understand ways to expand knowledge and skills.

Indicator 12.3: Have a sound physique, be able to choose appropriate self-learning methods according to the needs of personal or professional development, and adapt to the development of industry and society.

III. Professional characteristics

1. Based on provincial teaching and research platforms such as the innovation training center for undergraduate students in electronic information, the demonstration base of university-enterprise cooperation and the key laboratory of all-solid-state energy storage materials and devices, we aim to enhance students' abilities in electronic product research and development. The discipline competitions will serve as a motivating force to drive this development.

2. We have established research institutes, laboratories and experimental classes with the Peoples Government of Yiyang City, Huawei and others, and established an electronic design engineer certification examination center in cooperation with the Chinese Institute of Electronics, which have facilitated students' employment.

IV. Main disciplines

Electronic science and technology, information and communication engineering.

V. Core courses of the major

Circuit analysis, analog electronic technology, digital electronic technology, high frequency electronic circuits, signals and systems, digital signal processing, communication principles, electromagnetic fields and waves, C++ programming, data structures, microcontroller principles and applications, embedded system principles and applications.

VI. Main practical teaching links

Main professional experiments: circuit analysis experiment, analog electronic technology experiment, digital electronic technology experiment, high frequency electronic technology experiment, signal and system experiment, microcontroller principle and application experiment, digital signal processing experiment and FPGA principle and application experiment and other course experiments.

Main Professional Internships (Training): Electronic Process Internship and Electronic Product Assembly and Debugging Internship, Analog Unit Circuit Simulation and Development Comprehensive Practical Training Internship, Digital Unit Circuit Simulation and Development Comprehensive Practical Training Internship, Metalworking Training A, Electronic and Electrical Training A,

Comprehensive Practical Training Internship for Electronic System Design, Comprehensive Practical Training Internship for Microcontroller Systems, Comprehensive Practical Training Internship for Embedded Systems.

Main professional design: graduation comprehensive training.

VII. Lengthy of study and degree awarding

Standard school term: 4 years, study period 3-6 years; those who meet the provisions of "Hunan City College Bachelor Degree Awarding Implementation Rules" will be awarded bachelor degree in engineering.

VIII. Requirements of graduation credits and distribution of total hours

The minimum credit requirement for graduation of students in this major is 171 Chinese credits (230 ECTS credits), and the comprehensive training requirement for graduation is qualified					
the type of course	**Chinese literature (percentage)**	**ECTS credits (percentage)**	**Contact hours**	**Self-study hours**	**total class hours**
liberal education	29.5 (17.3%)	33.5 (14.6%)	584	421	1005
foreign language	9 (5.3%)	9 (3.9%)	144	126	270
Mathematical foundation	27.5 (16.1%)	28 (12.2%)	448	392	840
Engineering foundation	30 (17.5%)	35 (15.2%)	536	514	1050
engineering application	15 (8.8%)	20.5 (8.9%)	280	335	615
Self-developm ent	20 (11.7%)	27 (11.7%)	384	426	810
Concentrated practice	26 (15.2%)	47 (20.4%)	832	578	1410
graduation project	14 (8.2%)	30 (13.0%)	448	452	900
amount to	171	230	3656	3244	6900

IX Talent training program schedule

1 Teaching schedule

SN	Curriculum type	Course category	Course code	Course title	Course lecturer	Type	Chinese credit	ECTS credit	Teaching Time (hours)	Self-study time (hours)	examine way	Semester schedule	remarks
1	compulsory	liberal education	9123311011	Ideological and moral education and the rule of law		L&P	3	3	48	42	examination	one	
2	compulsory	liberal education	9124311041	Essentials of Chinese Modern History		L&P	3	3	48	42	examination	two	
3	compulsory	liberal education	9121311021	Basic principles of Marxism		L&P	3	3	48	42	examination	three	
4	compulsory	liberal education	9122311021	An overview of MAO Zedong Thought and the theoretical system of socialism with Chinese characteristics		L&P	5	5	80	70	examination	four	
5	compulsory	liberal education	9122311071	An overview of Xi Jinpings Thought on Socialism with Chinese Characteristics for a New Era		L&P	3	3	48	42	examination	six	9-16 weeks
6	compulsory	liberal education	9125111050	Situation and Policy (1) - (8)		L	2	2	32	28	examine	I-VIII	a course of lectures
7	compulsory	liberal education	9061111010	Literature search and paper writing		L	1	1	16	14	examine	six	

8	compulsory	liberal education	9181311010	Mental health education for college students		L&P	1	1.5	32	13	examine	I / II	Practice was completed in
9	compulsory	liberal education	9151311010	Career development and employment guidance for college students (1)		L&P	0.5	1	16	14	examine	four	a course of lectures
10	compulsory	liberal education	9151311020	Career development and employment guidance for college students (2)		L&P	0.5	1	12	18	examine	six	a course of lectures
11	compulsory	liberal education	9163311010	Innovation and entrepreneurship foundation		L&P	1	1.5	32	13	examine	two	
12	compulsory	liberal education	9182311020	Military theory for college students		L&P	2	2	36	2 4	examine	two	
13	compulsory	liberal education	9063311011	College students computer foundation		L&P	1.5	1.5	32	13	examination	one	
14	compulsory	liberal education	9103811010	University Physical Education and Health (1)		L&P	1	1.5	32	13	examine	one	The practical class is a
15	compulsory	liberal education	9103811020	University Physical Education and Health (2)		L&P	1	1.5	32	13	examine	two	The practical class is a
16	compulsory	liberal education	9103811030	University Physical Education and Health (3)		L	0.5	1	20	10	examine	three	
17	compulsory	liberal education	9103811040	University Physical Education and Health (4)		L	0.5	1	20	10	examine	four	
			Total 1				**29.5**	**33.5**	**584**	**421**			
18	compulsory	foreign language	9054311011	College English (1)		L	2.5	2.5	40	35	examination	one	
19	compulsory	foreign language	9054311021	College English (2)		L	3.5	3.5	56	49	examination	two	
20	compulsory	foreign language	9054311031	University English Extension Series (1)		L	1.5	1.5	24	21	examination	three	Those who have passed

21	compulsory	foreign language	9054311041	University English Extension Series (2)		L	1.5	1.5	24	21	examination	four	Those who have passed
			Total 2				**9**	**9**	**144**	**126**			
22	compulsory	Mathematical foundation	9092112011	Advanced Mathematics A (1)		L	4.5	4.5	72	63	examination	one	
23	compulsory	Mathematical foundation	9092112021	Advanced Mathematics A (2)		L	5	5	80	70	examination	two	
24	compulsory	Mathematical foundation	9092112051	linear algebra		L	2	2	32	28	examination	three	
25	compulsory	Mathematical foundation	9061112041	complex function	Deng Yaqi	L	3	3	48	42	examination	five	
26	compulsory	Mathematical foundation	9092112061	Probability theory and mathematical statistics		L	2.5	2.5	40	35	examination	four	
27	compulsory	Mathematical foundation	9063112041	discrete mathematics	Moser Ying	L	3	3	48	42	examination	three	
28	compulsory	Mathematical foundation	9065112041	University Physics B (1)	Wu Shoujian	L	3.5	3.5	56	49	examination	two	
29	compulsory	Mathematical foundation	9065112051	University Physics B (2)	Wu Shoujian	L	3.5	3.5	56	49	examination	three	
30	compulsory	Mathematical foundation	9065212030	University physics experiment	Deng Taiping	P	0.5	1	16	14	examine	three	
			Total: $3				**27.5**	**28**	**448**	**392**			
31	compulsory	Engineering foundation	9063313061	C language programming	Liu Xiaoxi	L&P	4	4	80	40	examination	one	Science and engineering
32	compulsory	Engineering foundation	9061112010	Introduction to electronic information engineering	Jiang Dongchu et	L	1	1	16	14	examine	one	

33	compulsory	Engineering foundation	9061313211	circuit analysis	Hu Saichun	L&P	3.5	4	64	56	examination	two	
34	compulsory	Engineering foundation	9061313021	Analog electronic technology	Jiang Dongchu	L&P	4	5	72	78	examination	three	
35	compulsory	Engineering foundation	9061313231	Digital electronic technology	Zhou Lai Xiu	L&P	3.5	4	56	64	examination	four	
36	compulsory	Engineering foundation	9061313051	Signals and Systems	He Fei	L&P	4	5	72	78	examination	five	
37	compulsory	Engineering foundation	9062313021	Communication Fundamentals	Deng Yangbao	L&P	3	4	48	72	examination	six	
38	compulsory	Engineering foundation	9065113011	Electromagnetic field and electromagnetic wave	Xiong Cuixiu	L	3	3	48	42	examination	five	
39	compulsory	Engineering foundation	9063313081	data structure	Liu Xiaoxi	L&P	4	5	80	70	examination	two	
			Total: $4				**30**	**35**	**536**	**514**			
40	compulsory	engineering application	9061313221	C++ Programming Language	Zhong Peng	L&P	2.5	3.5	48	57	examination	three	
41	compulsory	engineering application	9061312030	PCB design and drawing ●	Peng Jinlin	L&P	1.5	2	32	28	examine	five	● is a school-enterp
42	compulsory	engineering application	9061312040	Modern sensor and detection technology ●	Deng Yaqi	L&P	2	3	40	50	examine	six	● is a school-enterp
43	compulsory	engineering application	9061313061	High frequency electronic circuits	Xiong Jie	L&P	3	4	56	64	examination	five	
44	compulsory	engineering application	9061313081	digital signal processing	Lin Lin	L&P	3	4	48	72	examination	six	
45	compulsory	engineering application	9061313171	Principle and Application of Microcontroller ●	Liu Xiongjie	L&P	3	4	56	64	examination	four	● is a school-enterp

			Total: $5				**15**	**20.5**	**280**	**335**			
46	elective	Self-development	9061324010	STM32 Electronic System Design and Engineering Application ■	Li Wenguo	L&P	1.5	3	32	58	examine	five	Choose at least 9 credits. The course name with ● is the school-enterprise cooperation course. ■ Characteristic courses
47	elective	Self-development	9061324020	FPGA Principles and Applications ●	Li Jia Sheng	L&P	2.5	4	48	72	examine	six	
48	elective	Self-development	9061324130	Principles and Applications of Embedded Systems ●	Zhang Lincheng	L&P	3.5	5	64	86	examination	five	
49	elective	Self-development	9061324040	DSP technology and application ●		L&P	2.5	3.5	48	57	examine	six	
50	elective	Self-development	9061324050	Principle of automatic control		L&P	2.5	3	48	42	examine	five	
51	elective	Self-development	9061324060	PLC principle and application ●		L&P	2.5	3.5	48	57	examine	seven	
52	elective	Self-development	9061324070	Robot development ●	Zhang Lincheng	L&P	2.5	4	48	72	examine	six	
53	elective	Self-development	9061324080	Embedded Linux Programming ●		L&P	1.5	3	32	58	examine	seven	
54	elective	Self-development	9061312010	Electronic integrated design ●■		L&P	2	3	40	50	examine	six	
55	elective	Self-development	9061313041	Microcomputer principle and interface technology		L&P	3	3	48	42	examination	three	
56	elective	Self-development	9061313311	Deep learning technology		L&P	2.5	4	48	72	examine	seven	
57	elective	Self-development	9171824020	Humanities and social sciences		L	2	2	32	28	examine	three	Natural science majors should
58	elective	Self-development	9171824030	Art and physical education		L	2	2	32	28	examine	four	

59	elective	Self-development	9163311020	Innovation and entrepreneurship		L&P	2	3	64	26	examine	seven	choose 2 credits of
60	elective	Self-development		Others (1)		L	2	2	32	28	examine	six	Other self-developed courses (including cultural
61	elective	Self-development		Others (2)		L	2	2	32	28	examine	seven	
			Total: $6				**20**	**27**	**384**	**426**			
62	compulsory	Concentrated practice	9132311030	Admission education and military training		L&P	**3**	4	3 weeks	24	examine	one	It doesnt count for
63	compulsory	Concentrated practice	9133315010	Public welfare labor		P	1	2	1 week	28	examine	five	disperse
64	compulsory	Concentrated practice	9141315010	Social practice and volunteer service		P	1	2	1 week	28	examine	seven	vacation
65	compulsory	Concentrated practice	9061615010	Electronics technology internship and electronic product assembly and debugging internship ●	Li Wenguo Xiong Jie	P	1	2	1 week	28	examine	one	● is the practical part of
66	compulsory	Concentrated practice	9061615020	Simulation and development of integrated training and internship of unit circuit ●	Jiang Dongchu Zhu	P	1	2	1 week	28	examine	two	● is the practical part of
67	compulsory	Concentrated practice	9061615030	Digital unit circuit simulation and development comprehensive practical training ●	Tan Yue Zhou Lai Xiu	P	1	2	1 week	28	examine	three	● is the practical part of
68	compulsory	Concentrated practice	9162715010	Metalworking practice A		P	1	2	1 week	28	examine	four	General engineering
69	compulsory	Concentrated practice	9161715010	Electrical and Electronic Training A		P	1	2	1 week	2 8	examine	one	Non-mechanical and

70	compulsory	Concentrated practice	9061415010	Integrated practical training of microcontroller system ●	Liu Xiongjie	P	1	3	1 week	58	examine	four	● is the practical part
71	compulsory	Concentrated practice	9061615040	Electronics system engineering practice and internship ●	Li Jia Sheng	P	1	3	1 week	58	examine	five	● is the practical part
72	compulsory	Concentrated practice	9061615070	Embedded system comprehensive practical training and practice ●	Zhang Lincheng	P	1	3	1 week	58	examine	six	● is the practical part
73	compulsory	Concentrated practice	9061615060	graduation field work ●	Li Wenguo et al	P	12	18	12 weeks	156	examine	seven	● is the practical part
74	compulsory	Concentrated practice	9061815010	graduating education		L	**1**	2	1 week	28	examine	eight	It does not count for
			Total: $7				**26**	**47**	**26 weeks**	**578**			
75	compulsory	Graduation thesis/design	9061515010	Graduation comprehensive training	Li Wenguo et al	L&P	14	30	14 weeks	452	examine	eight	
			Total 8				**14**	**30**	**14 weeks**	**452**			
			Final Total				**171**	**230**	**3656**	**3244**			

1. Semester schedule

First year													
	Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours)ss		Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours),
1	9123311011	Ideology, morality and the rule of law	3	3	48	42	2	9124311041	Essentials of Chinese Modern History	3	3	48	42
	9054311011	College English (1)	2.5	2.5	40	35		9054311021	College English (2)	3.5	3.5	56	49
	9063311011	College students computer foundation	1.5	1.5	32	13		9103811020	University Physical Education and Health (2)	1	1.5	32	13
	9103811010	University Physical Education and Health (1)	1	1.5	32	13		9092112021	Advanced Mathematics A (2)	5	5	80	70
	9092112011	Advanced Mathematics A (1)	4.5	4.5	72	63		9065112041	University Physics B (1)	3.5	3.5	56	49
	9063313061	C language programming	4	4	80	40		9063313081	data structure	4	5	80	70
	9061112010	Introduction to electronic information engineering	1	1	16	14		9061313211	circuit analysis	3.5	4	64	56
	9132311030	Admission education and military training	**3**	4	3 weeks	24		9163311010	Innovation and entrepreneurship foundation	1	1.5	32	13
	9125111050	Situation and policy (1-4)	1	1	1 6	1 4		9182311020	Military theory for college students	2	2	36	2 4
	9161715010	Electrical and Electronic Training A	1	2	1	2 8		9181311010	Mental health education for college students	1	1.5	32	13
	9061615010	Electronics technology internship and electronic product assembly and	1	2	1 week	28							
	Term Summary		2 3.5	2 7	4 96	3 14		Term Summary		2 7.5	3 0.5	5 16	3 99
	Second year												

	Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours)		Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours)
3	9121311021	Basic principles of Marxism	3	3	48	42	4	9122311021	An overview of MAO Zedong Thought and the theoretical	5	5	80	70
	9054311031	University English Extension Series	1.5	1.5	24	21		9054311041	University English Extension Series (2)	1.5	1.5	24	21
	9103811030	University Physical Education and Health (3)	0.5	1	20	10		9103811040	University Physical Education and Health (4)	0.5	1	20	10
	9092112051	linear algebra	2	2	32	28		9092112061	Probability theory and mathematical statistics	2.5	2.5	40	35
	9065112051	University Physics B (2)	3.5	3.5	56	49		9061313231	Digital electronic technology	3.5	4	56	64
	9065212030	University physics experiment	0.5	1	16	14		9061313171	Principle and application of microcontroller	3	4	56	64
	9061313021	Analog electronic technology	4	5	72	78		9151311010	Career development and employment guidance for [illegible] students (1)	0.5	1	16	14
	9063112041	discrete mathematics	3	3	48	42		9162715010	Metalworking practice A	1	2	1 week	2 8
	9061313221	C++ Programming	2.5	3.5	48	57		9171824030	Art and physical education	2	2	32	28
	9171824020	Humanities and social sciences	2	2	32	28		9061615030	Digital unit circuit simulation and development	1	2	1 week	28
	9061615020	Simulation and development of unit circuit simulation and comprehensive	1	2	1 week	28		9061415010	Integrated practical training of microcontroller principle and [illegible]	1	3	1 week	58
	9171824020	Humanities and social sciences	2	2	32	28							
	Term Summary		2 3.5	2 7.5	4 28	3 97		Term Summary		2 1.5	2 8	4 20	4 20

	Third year												
5	Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours)	6	Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours).
	9061112041	complex function	3	3	48	42		9062313021	Communication Fundamentals	3	4	48	72
	9065113011	Electromagnetic field and electromagnetic wave	3	3	48	42		9061313081	digital signal processing	3	4	48	72
	9061312030	PCB design and drawing	1.5	2	32	28			Professional elective 2	2.5	4	48	72
	9061313051	Signals and Systems	4	5	72	78			Professional elective 3	3.5	5	64	86
		Professional elective 4	2.5	4	48	72		9061312040	Modern sensor and detection technology	2	3	40	50
		Professional elective 1	1.5	3	32	58		9151311020	Career development and employment guidance for college students (2)	0.5	1	12	18
	9061313061	High frequency electronic circuits	3	4	56	64		9061111010	Literature search and paper writing	1	1	16	14
	9133315010	Public welfare labor	1	2	32	28		9122311071	An overview of Xi Jinpings Thought on Socialism with Chinese Characteristics for a New Era	3	3	48	42
	9061615040	Electronics system engineering practice and internship ●	1	3	1 week	58		9061615070	Embedded system comprehensive practical training and practice ●	1	3	1 week	58
									Others 1	2	2	32	28

	Term Summary		2 0.5	2 9	4 00	4 70		Term Summary		2 1.5	3 0	3 88	5 12
	Fourth grade												
7	Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours).	8	Curriculum code	Curriculum	Chinese credit	ECTS credit	Teaching time (hours)	Self-study time (hours)
	9061615060	graduation field work	12	18	12 weeks	156		9061515010	Graduation comprehensive training	14	30	14 weeks	452
		Others 2	2	2	32	28							
	9125111050	Situation and policy (5-8)	1	1	16	14							
	9061815010	graduating education	**1**	2	32	28							
	9163311020	Innovation and entrepreneurship	2	3	64	26							
		Social practice and volunteer service	1	2	32	28							
	Term Summary		1 9	2 8	5 60	2 80		Term Summary		1 4	3 0	4 48	4 52

X Talent training standard realization matrix

Table 10-1 The support matrix of graduation requirements and training objectives

Train objective / Graduation Requirements (GR)	Cultivation objectives 1	Cultivation objective 2	Cultivation objective 3	Cultivation objective 4	Cultivation objective 5	Cultivation objective 6
GR1		M	H			
GR2		H	H	H		
GR3		M	H	H		
GR4	M	H	H	H		
GR5			M	H	L	
GR6			M	H	M	
GR7	H			L	M	M
GR8	H		M		H	H
GR9	H		L		H	
GR10				H	H	H
GR11					H	H
GR12	M			M	M	H

Note: The graduation requirements (GR) and the support of the training objectives are represented by "H (high support), M (middle support), L (low support)" respectively. H represents direct support, M represents indirect support, and L represents associated support.

Table 10-2 Course System and Graduation Requirements Support Matrix

Curriculum	GR 1	GR 2	GR 3	GR 4	GR 5	GR 6	GR 7	GR 8	GR 9	GR 10	GR 11	GR 12
Ideological and moral education and the rule of law	H			M			M		H			
Essentials of Chinese Modern History	H							H	M			
Basic principles of Marxism	M								H			H
An overview of MAO Zedong Thought and the theoretical system of socialism with Chinese characteristics	H							H	M			H
situation and policy	H						M		M		H	
College English (1)										M	H	H
College English (2)										M	H	H
University English Extension Series (1)										M	H	H
University English Extension Series (2)										M	H	H
Literature search and paper writing										H	H	
Mental health education for college students										H	M	L
Career development and employment guidance for college students (1)									H	M	M	H
Career development and employment guidance for college students (2)									H	M	M	H
Innovation and entrepreneurship foundation						L	L	L		H	M	M
Military theory for college students	H								M	H		M

College students computer foundation		L			H	H					H	
C language programming		L			H	H					H	
University Physical Education and Health (1)										H		M
University Physical Education and Health (2)										H		M
University physical education and health (3)										H		M
University Physical Education and Health (4)										H		M
Advanced Mathematics A (1)					H		M					
Advanced Mathematics A (2)			H		M				M	M		L
linear algebra		H	M	M						M		L
complex function		H	M	M	M					M		L
Probability theory and mathematical statistics					H							
University Physics B (1)		H	M	M	M							
University Physics B (2)					H							
University physics experiment		H	M							M		
Circuit board design and production ●			H	M	M				M			L
Modern sensor and detection technology ●		H	M	M	M				M	M		L
discrete mathematics		H	M	M	M					M		L
C++ Programming Language					H		M					
Electronic integrated design					H		M					
circuit analysis					H		M					
Analog electronic technology					H		M					
Digital electronic technology			H	M	M							L

Microcomputer principle and interface technology			H	M	M							L
Signals and Systems			H	M	M							L
High frequency electronic circuits			H			M	M			L		
Electromagnetic field and electromagnetic wave			H	M	M							L
data structure			H		M				M	M		
digital signal processing			H		M				M	M		
Communication Fundamentals			H		M				M	M		
Principle and Application of Microcontroller ●		H			M	M	M	M	M			
Develop ● based on STM32 electronic system			H	M	M	M	M	M		M		L
FPGA Principles and Applications ●		H					M					L
Embedded principles and technology ●		H					M					L
DSP technology and application ●		H	M	M	M					M		L
Principle of automatic control					H		M					
PLC principle and application ●					H		M					
Robot development ●					H		M					
Embedded Linux Programming ●		H					M					L
Innovation and entrepreneurship		H					M					L
Humanities and social sciences		H					M					L
Art and physical education		H					M					L
Others 1		H					M					L
Others 2		H					M					L
Admission education and military training					H		M					

Public welfare labor		H					M					L
Social practice and volunteer service		H					M					L
Electronics technology internship and electronic product assembly and debugging internship ●			H	M	M							L
Simulation and development of integrated practical training of unit circuit ●			H	M	M							L
Digital unit circuit simulation and development comprehensive practical training and practice ●			H	M	M							L
Metalworking practice A			H			M	M			L		
Electrical and Electronic Training A			H	M	M							L
Integrated practical training of microcontroller system ●			H		M				M	M		
Comprehensive practical training of electronic system design ●			H		M				M	M		
Embedded System Comprehensive Training and Practice ●	L		H		M				M	M		
graduation field work ●		H			M	M	M	M	M			
Graduation comprehensive training			H	M	M	M	M	M		M		L
graduating education					H		M					

Note: The course system and graduation requirements (GR) are supported by "H (high support), M(middle support) and L(low support)" respectively. H represents direct support, M represents indirect support and L represents related support