2025 Edition Undergraduate Talent Training Program for Electronic Information Engineering

Professional code: 080701

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1. Training Objectives

This major closely revolves around national strategies and the economic development needs of the regional information manufacturing industry, deeply implements the mission of cultivating morality and educating people, cultivates the all-round development of morality, intelligence, physical fitness, aesthetics and labor, masters professional knowledge and skills in modern electronic technology theory, electronic information system design and application development, and has the ability of signal processing and electronic information system hardware design and programming. It can be used as a high-quality application-oriented talent in the fields of information communication, electronic technology, intelligent control, etc. to engage in product design, process manufacturing, application development and technical management of various electronic equipment and information systems.

Goals that graduates will achieve after graduation:

Training Objective 1: To cultivate morality and educate people, to have the willingness to actively serve the country and society, to abide by professional ethics and consider the public interest in engineering practice, and to become qualified builders and reliable successors of the socialist cause.

Training Objective 2: Professional ability, capable of carrying out research and development, production, sales and management of electronic information systems or products, and possessing a certain sense of innovation and innovation ability.

Training Goal 3: Comprehensive quality, possessing humanities literacy, being able to communicate effectively in a multidisciplinary or cross-cultural environment, and being able to play an effective role in engineering practice as a team member or leader.

Training Goal 4: Lifelong learning, with the awareness of independent learning and lifelong learning, global awareness and international perspective, and the ability

to improve professional ability through job experience, independent learning, and studying for a master's/doctoral degree.

2. Basic requirements for graduation

Graduation Requirements 1 (Ideology and Morality): Firmly uphold the leadership of the Communist Party of China and the socialist system with Chinese characteristics, guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, practice core socialist values, and possess firm ideals and convictions, deep patriotism, and a sense of pride in the Chinese nation. Students must master national laws and industry regulations related to the professions covered by this major, possess a dedicated professional spirit, abide by professional ethics and behavioral norms, and possess a sense of social responsibility and commitment.

Graduation Requirements 1.1: Support the leadership of the Communist Party of China, love the socialist motherland, master Marxism, Mao Zedong Thought, and the theoretical system of socialism with Chinese characteristics, and systematically study the Party's theories, national policies, and the rule of law.

Graduation Requirement 1.2: Through ideological and political education, mental health education, and professional ethics courses, guide students to establish a correct outlook on life, world view, and values, abide by laws and regulations, work in unity and cooperation, love their jobs, be willing to contribute, and have a sense of social responsibility and a spirit of commitment.

Graduation Requirement 2 (Engineering Knowledge): Be able to apply mathematics, physics, engineering fundamentals, and professional knowledge to the expression, analysis, derivation, comparison, and evaluation of complex engineering problems in the fields of information and communications, electronic technology, and intelligent control.

Graduation Requirement 2.1: Possess the mathematical and engineering knowledge necessary to understand and describe complex engineering problems in fields such as information and communications, electronics, and intelligent control.

Graduation Requirement 2.2: Possess basic knowledge of mathematics, physics, electronics, information technology, and computers, and be able to abstractly model and solve electronic information devices, equipment, and systems.

Graduation Requirement 2.3: Be able to apply specialized knowledge in

electronics and information technology to analyze and deduce complex engineering problems in the field of electronics and information technology.

Graduation Requirement 2.4: Be able to apply comprehensive engineering knowledge to compare and evaluate design proposals for electronic circuits, signal processing, and transmission systems.

Graduation Requirement 3 (Problem Analysis): Be able to apply the principles of mathematics, natural science, electronic science, and information science to identify, express, and analyze complex engineering problems in the fields of information communication, electronic technology, and intelligent control through literature research, and obtain effective conclusions.

Graduation Requirement 3.1: Be able to apply the fundamental principles of natural science, electronic science, and information science to identify the manifestations of complex engineering problems and the key components, modules, equipment, and procedures in the fields of information communication, electronic technology, and intelligent control.

Graduation Requirement 3.2: Be able to rationally express key components, modules, equipment, and programs in complex engineering projects in the fields of information communications, electronic technology, and intelligent control using electronic science, information science, mathematical modeling methods, and program flow charts.

Graduation Requirement 3.3: Be able to understand optional or alternative problem-solving solutions through literature research, and be able to draw effective conclusions by analyzing the influencing parameters of key components, modules, and equipment.

Graduation Requirement 4 (Design/Development of Solutions): Be able to design solutions for electronic circuits, signal processing, and transmission systems that meet user needs. Design unit circuits, functional modules, equipment design plans, and programs that meet these requirements, demonstrating a sense of innovation in design.

Graduation Requirement 4.1: Be able to develop unit circuits, functional modules, and program flows that meet specific needs based on functional requirements.

Graduation Requirement 4.2: Be able to propose systematic solutions to complex engineering problems in fields such as information and communications, electronics, and intelligent control, and determine design goals, technical requirements,

development cycles, and processes.

Graduation Requirement 4.3: Be able to apply knowledge of electronics and information technology to evaluate, optimize, and improve design/development solutions, and demonstrate a sense of innovation.

Graduation Requirement 5 (Research): Be able to apply principles of mathematics, natural sciences, engineering fundamentals, electronics science, information science principles, and scientific methods to conduct research on complex engineering problems in the fields of information communications, electronic technology, and intelligent control. This includes designing experiments, analyzing and interpreting data, and deriving reasonable and effective conclusions through information synthesis.

Graduation Requirement 5.1: Students should be able to determine experimental objectives and methods based on scientific principles and design experimental plans to solve complex engineering problems in the fields of information and communications, electronics, and intelligent control.

Graduation Requirement 5.2: Be able to select, build, or develop a hardware and software experimental environment for electronic circuits, signal processing, and transmission systems, conduct experiments, and record and organize experimental data.

Graduation Requirement 5.3: Be able to statistically analyze and interpret experimental data, and draw reasonable and valid conclusions through information synthesis.

Graduation Requirement 6 (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, electronics, and intelligent control. This includes simulation analysis and prediction of complex engineering problems, and an understanding of their limitations.

Graduation Requirement 6.1: 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.

Graduation Requirement 6.2: Be able to acquire and select appropriate information technology tools, electronic measuring instruments, and simulation

software tools for testing, calculation, and simulation in the analysis, design, and research of electronic circuits, signal processing, and transmission systems.

Graduation Requirement 6.3: Be able to simulate and predict specific complex engineering problems in the fields of information and communications, electronics, and intelligent control using modern tools developed to meet specific needs, and understand and analyze their limitations.

Graduation Requirement 7 (Engineering and Sustainable Development): Be able to apply electronic information-related industrial policies, industry standards, and relevant industry laws and regulations to engineering practice; be able to evaluate the impact of solutions to complex engineering problems in the fields of information and communications, electronic technology, and intelligent control on society, health, safety, law, and culture, and understand the responsibilities that should be assumed; be able to understand and evaluate the impact of engineering practices for complex engineering problems in the fields of information and communications, electronic technology, and intelligent control on the environment and social sustainable development.

Graduation Requirement 7.1: Be able to apply relevant technical standards, intellectual property rights, industrial policies, and quality management systems in the fields of electronics, information technology, and computers to the engineering practice of complex engineering problems in the fields of information communication, electronic technology, and intelligent control.

Graduation Requirement 7.2: Be able to objectively analyze and evaluate the social, health, safety, legal, and cultural impacts of the development, production, and operation of new products, technologies, and processes, and understand the responsibilities that should be assumed.

Graduation Requirement 7.3: Be familiar with relevant laws and regulations on environmental protection and understand the relationship between electronic and information engineering practices and the environment and sustainable social development.

Graduation Requirement 7.4: Evaluate resource efficiency, pollutant disposal, and safety precautions for solutions to complex engineering problems in information and communications, electronics, and intelligent control, and assess potential harm to humans and the environment during the product life cycle.

Graduation Requirement 8 (Engineering Ethics and Professional Standards):

Possess literacy in the humanities and social sciences, a correct outlook on life, the world, and morality, understand the core socialist values and abide by professional ethics, be honest and trustworthy, and have a sense of responsibility.

Graduation Requirements 8.1: Possess a solid foundation in the humanities and social sciences, a sound outlook on life, the world, and morality, an understanding of the core socialist values and adherence to professional ethics, honesty and trustworthiness, and a strong sense of responsibility.

Graduation Requirement 8.2: Understand the core socialist values, understand national conditions, be able to safeguard national interests, and possess a sense of social responsibility.

Graduation Requirement 8.3: Understand the core concepts of engineering ethics and be able to abide by professional ethics and standards and fulfill corresponding responsibilities in the development, testing, and production practices of electronic information projects.

Graduation Requirement 9 (Individual and Team): Ability to assume roles as an individual, team member, and leader within a multidisciplinary team, possessing organizational and management skills, interpersonal skills, academic communication skills, and teamwork skills.

Graduation Requirement 9.1: Ability to proactively collaborate with members of other disciplines to carry out work.

Graduation Requirement 9.2: Able to fulfill the roles and responsibilities of a team member, listen to the opinions of other team members, and collaborate to complete team tasks.

Graduation Requirement 9.3: Be able to form a team based on the tasks and personnel characteristics, understand the roles and responsibilities within the team, and manage and coordinate team operations.

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

Graduation Requirement 10.1: Be able to write reports and documents with

standard format, clear organization, and accurate language, addressing theoretical and technical research and engineering practice requirements in electronic circuits, signal processing, and transmission systems, and produce electronic materials that are convenient for presentation and communication.

Graduation Requirement 10.2: Be able to read foreign language materials related to the major, express and respond to professional issues, and possess basic cross-cultural communication skills.

Graduation Requirement 10.3: Possess excellent communication skills and be able to effectively communicate and exchange complex engineering problems in the field of electronic information through oral and written expression.

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

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

Graduation Requirement 11.2: In the engineering practice of a multidisciplinary environment, be able to apply time and cost management, quality and risk management, and human resource management to the management of electronic information engineering projects.

Graduation Requirement 11.3: Ability to apply engineering management principles 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 and lifelong learning, and possess the ability to continuously learn and adapt to social development.

Graduation Requirement 12.1: Be able to correctly understand the current status and development trends of electronics and information science, and have a sense of independent learning and lifelong learning.

Graduation Requirement 12.2: Possess a foundation of knowledge for lifelong learning, master methods of independent learning, and understand ways to expand knowledge and abilities.

Graduation Requirement 12.3: Be physically fit and able to choose appropriate independent learning methods to meet personal or professional development needs

and adapt to industry and social development.

3. Professional Characteristics

This major actively responds to the call of Hunan Province's "Three Highs and Four New" strategy, combines Yiyang City's electronic information characteristic industry and the school's "Information Manufacturing" professional cluster construction plan, relies on provincial modern industrial colleges and key laboratories and other teaching and research platforms, and is driven by subject competitions to cultivate students' embedded system product R&D capabilities.

4. Core Disciplines

Electronic science and technology, information and communication engineering.

5. Core Courses

Analog Electronic Technology, Digital Electronic Technology, C++ Programming, Data Structure A, Signal and System, Principle and Application of Microcontroller, Principles and Applications of Embedded Systems.

6. 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, single-chip microcomputer principle and application experiment, digital signal processing experiment and embedded system principle and application 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 training internship, digital unit circuit simulation and development comprehensive training internship, Metalworking Practice A, Electronic and Electrical Practice A , electronic system design comprehensive training internship, single-chip microcomputer system comprehensive training internship, embedded system comprehensive training internship.

Main professional design: comprehensive training for graduation.

7. Academic System and Degree Awarding

Standard academic period: 4 years, with a study period of 3-6 years. Applicants who meet the requirements of the "Implementation Rules for the Awarding of Bachelor's Degrees of Hunan City University" will be awarded a Bachelor of Engineering degree.

8. Graduation Credit Requirements and Total Class Hours Distribution

<table>
<tr>
<td colspan="2">The minimum credit requirement for graduation of this major is__154.5__Credits,
Graduation Comprehensive Training　Requirements: Pass</td>
</tr>
<tr>
<td rowspan="2">Theoretical teaching total __102__ Credits (66)%;
common__1704__ Study hours (58.5)%.</td>
<td>Compulsory 84 Credits (82.4)%; 1384 Class hours (81.2)%</td>
</tr>
<tr>
<td>Elective 18 Credits (17.6)%; 320 hours (18.8)%</td>
</tr>
<tr>
<td colspan="2">Practical teaching __52.5__ Credits (34)%; a total of __1210__ Study hours (41.5)%.
Experimental teaching totals __26.5__ Credits, total__490__ Study hours.</td>
</tr>
</table>

Course Category	Standard of proportion of total credits	Credit		Percentage of total credits		
		Compulsory	Elective	Compulsory	Elective	Proportion Subtotal
Mathematics and Natural Sciences	≥ 15%	22	2	14.2%	1.3%	15.5%
Basic Engineering	≥ 30%	2	0	1.3%	0	1.3%
Professional Basics		22.5	0	14.6 %	0	14.6 % / 37.2 %
Professional		21	12	13.6%	7.8 %	21.4 %
Engineering Practice and Graduation Design (Thesis)	≥ 20%	27	4	17.5 %	2.6%	20.1 %
Humanities and Social Sciences	≥ 15%	38	4	24.6 %	2.6%	27.2 %
Subtotal	/	13 2.5	22	85.8 %	14.2%	/
Total	/	15 4. 5		100%		

9. Talent training plan schedule

(1) Teaching Plan Arrangement Table

Serial number	Course type	Module designation	Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours	Evaluation mode	S1	S2	S3	S4	S5	S6	S7	S8
1	Compulsory	General Education	9123311011	Ideological and Moral Cultivation and Legal Basis	3	3.1	48	44	Examination courses	3.1							
2	Compulsory	General Education	9124311041	Outline of Modern Chinese History	3	2.9	48	38	Examination courses		2.9						
3	Compulsory	General Education	9121311021	Basic Principles of Marxism	3	2.9	48	38	Examination courses			2.9					
4	Compulsory	General Education	9122311081	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	3	2.8	48	36	Examination courses				2.8				
5	Compulsory	General Education	9122311071	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3	3.1	48	46	Examination courses				3.1				
6	Compulsory	General Education	9125111040	Situation and Policy (1) - (8)	2	1.3	32	8	Assessment courses	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.18
7	Compulsory	General Education	9191311010	National Security Education	1	1	16	14	Assessment courses	1							
8	Compulsory	General Education	9132311020	Military Theory for College Students	2	1.8	36	18	Assessment courses		1.8						
9	Compulsory	General Education	9051111050	Practical Writing	1	0.8	16	7	Assessment courses		0.8						
10	Compulsory	General Education	9131311010	Mental Health Education for College Students	1.5	2.1	32	30	Assessment courses		2.1						

No.		Category	Code	Course													
11	Compulsory	General Education	9103811010	University Physical Education and Health (1)	1	1.1	32	0	Assessment courses	1.1							
12	Compulsory	General Education	9103811020	University Physical Education and Health (2)	1	1.1	32	0	Assessment courses		1.1						
13	Compulsory	General Education	9103811030	University Physical Education and Health (3)	0.5	0.7	20	0	Assessment courses			0.7					
14	Compulsory	General Education	9103811040	University Physical Education and Health (4)	0.5	0.7	20	0	Assessment courses				0.7				
15	Compulsory	General Education	9063111011	Introduction to Artificial Intelligence	1.5	1.3	24	16	Examination courses	1.3							
16	Compulsory	General Education	9151311010	Career Development and Employment Guidance for College Students (1)	0.5	1	20	10	Assessment courses	1							
17	Compulsory	General Education	9151311020	Career Development and Employment Guidance for College Students (2)	0.5	1	18	12	Assessment courses					1			
18	Compulsory	General Education	9163311010	Basics of Innovation and Entrepreneurship	1.5	1.7	23	29	Assessment courses		1.7						
Subtotal (General Education)					**29.5**	**30.4**	**561**	**346**		**7.66**	**10.56**	**3.76**	**6.76**	**1.16**	**0.16**	**0.16**	**0.18**
19	Compulsory	Foreign language	9054111011	College English (1)	3	3.6	48	60	Examination courses	3.6							
20	Compulsory	Foreign language	9054111021	College English (2)	3	3.6	48	60	Examination courses		3.6						
21	Compulsory	Foreign language	9054111031	College English Extension Series (1)	1.5	1.9	24	32	Examination courses			1.9					
22	Compulsory	Foreign language	9054111041	College English Extension Series (2)	1.5	1.9	24	32	Examination courses				1.9				
Subtotal (Foreign language)					**9**	**11**	**144**	**184**		**3.6**	**3.6**	**1.9**	**1.9**	**0**	**0**	**0**	**0**

No.		Category	Code	Course name						S1	S2	S3	S4	S5	S6	S7	S8
23	Compulsory	Mathematics and physics basics	9092112011	Advanced Mathematics A (1)	4.5	5	72	78	Examination courses	5							
24	Compulsory	Mathematics and physics basics	9092112021	Advanced Mathematics A (2)	5	5.5	80	85	Examination courses		5.5						
25	Compulsory	Mathematics and physics basics	9092112051	Linear Algebra	2.5	3	40	50	Examination courses			3					
26	Compulsory	Mathematics and physics basics	9092112061	Probability Theory and Mathematical Statistics	2	2.5	32	43	Examination courses				2.5				
27	Compulsory	Mathematics and physics basics	9061112041	Functions of Complex Variables	1.5	1.9	24	33	Examination courses			1.9					
28	Compulsory	Mathematics and physics basics	9065112011	College Physics (1)	3	3.6	48	60	Examination courses		3.6						
29	Compulsory	Mathematics and physics basics	9065112021	College Physics (2)	3	3.6	48	60	Examination courses			3.6					
30	Compulsory	Mathematics and physics basics	9065212030	College Physics Experiment	0.5	1.1	16	16	Assessment courses		1.1						
Subtotal (Mathematics and physics basics)					**22**	**26.2**	**360**	**425**		**5**	**10.2**	**8.5**	**2.5**	**0**	**0**	**0**	**0**
31	Compulsory	Engineering basics	9063313063	C Language Programming A	5	5.3	80	78	Examination courses	5.3							
32	Compulsory	Engineering basics	9061313011	Circuit Analysis	4	4	64	56	Examination courses	4							
33	Compulsory	Engineering basics	9063313083	Data Structure	4.5	5.1	72	80	Examination courses		5.1						
34	Compulsory	Engineering basics	9061313021	Analog Electronic Technology	4	6.4	64	128	Examination courses		6.4						

No.			Code	Course						S1	S2	S3	S4	S5	S6	S7	S8
35	Compulsory	Engineering basics	9061313031	Digital Electronic Technology	3.5	4.2	56	69	Examination courses			4.2					
36	Compulsory	Engineering basics	9061313041	Signals and Systems	4	4.4	64	68	Examination courses				4.4				
37	Compulsory	Engineering basics	9062313021	Communication Fundamentals	3.5	4.3	56	72	Examination courses						4.3		
Subtotal (Engineering basics)					**28.5**	**33.7**	**456**	**551**		**9.3**	**6.4**	**9.3**	**4.4**	**0**	**4.3**	**0**	**0**
38	Compulsory	Engineering application	9061312010	PCB Design and Drawing	2	2	32	28	Assessment courses					2			
39	Compulsory	Engineering application	9061312031	C++ Programming Language	3	3.5	48	57	Examination courses		3.5						
40	Compulsory	Engineering application	9061313051	High Frequency Electronic Circuits	3.5	4.7	56	86	Examination courses				4.7				
41	Compulsory	Engineering application	9061313061	Digital Signal Processing	3.5	4	56	64	Examination courses					4			
42	Compulsory	Engineering application	9061313081	Principle and Application of Microcontroller	3.5	4.4	56	76	Examination courses				4.4				
43	Compulsory	Engineering application	9061324010	STM32 Electronic System Design and Engineering Application	2	3.4	32	70.5	Assessment courses					3.4			
44	Compulsory	Engineering application	9061324020	Robot Development	3	3.5	48	57	Examination courses					3.5			
45	Compulsory	Engineering application	9061324040	FPGA Principles and Applications	3	3.8	48	66	Examination courses						3.8		
46	Compulsory	Engineering application	9061324050	Principles and Applications of Embedded Systems	4	5	64	86	Examination courses						5		
Subtotal (Engineering application)					**27.5**	**34.3**	**440**	**590.5**		**0**	**3.5**	**0**	**9.1**	**12.9**	**8.8**	**0**	**0**

No.	Type	Category	Code	Course Name					Assessment								
47	Compulsory	Centralized practice	9133315010	Labor education for college students	1	1.6	5	42	Assessment courses					1.6			
48	Compulsory	Centralized practice	9132315030	Admission Education and Military Training	0	3.6	24	84	Assessment courses	3.6							
49	Compulsory	Centralized practice	9141315010	Social Practice and Volunteer Service	1	3.2	8	88	Assessment courses						3.2		
50	Compulsory	Centralized practice	9162715010	Metalworking Practice A	1	1.5	24	20	Assessment courses				1.5				
51	Compulsory	Centralized practice	9161715010	Electronic and Electrical Practice A	1	1.6	24	24	Assessment courses	1.6							
52	Compulsory	Centralized practice	9061615010	Electronics Technology Internship and Electronic Product Assembly and Debugging Internship	1	1.9	24	32	Assessment courses	1.9							
53	Compulsory	Centralized practice	9061615020	Analog Unit Circuit Simulation and Development Comprehensive Practical Training Internship	1	2	24	36	Assessment courses		2						
54	Compulsory	Centralized practice	9061615030	Digital Unit Circuit Simulation and Development Comprehensive Practical Training Internship	1	2.6	24	54	Assessment courses			2.6					
55	Compulsory	Centralized practice	9061615040	Microcontroller System Comprehensive Practical Training Internship	1	2.8	12	71	Assessment courses				2.8				
56	Compulsory	Centralized practice	9061615050	Electronic System Engineering Practical Training Internship	1	2.3	9	61	Assessment courses					2.3			
57	Compulsory	Centralized practice	9061615060	Embedded System Comprehensive Practical Training Internship	1	2.4	12	60	Assessment courses						2.4		

No.	Type	Category	Course Code	Course Name	Credits	ECTS	Contact hours	Self-study hours	Assessment	S1	S2	S3	S4	S5	S6	S7	S8
58	Compulsory	Centralized practice	9061615070	Graduation Internship	6	14.4	32	400	Assessment courses							14.4	
Subtotal (Centralized practice)					**16**	**39.9**	**222**	**972**		**7.1**	**2**	**2.6**	**4.3**	**3.9**	**5.6**	**14.4**	**0**
59	Compulsory	Graduation thesis/design	9061515010	Graduation Comprehensive Training	12	24.4	136	595	Assessment courses								24.4
Subtotal (Graduation thesis/design)					**12**	**24.4**	**136**	**595**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24.4**
60	Elective	Autonomous development	9171824020	Humanities and Social Sciences	2	2	32	28	Assessment courses				2				
61	Elective	Autonomous development	9171824030	Art and Physical Education	2	2	32	28	Assessment courses					2			
62	Elective	Autonomous development	9163824020	Innovation and Entrepreneurship	2	2	32	28	Assessment courses						2		
63	Elective	Autonomous development		Others (1)	2	2	32	28	Assessment courses							2	
64	Elective	Autonomous development		Others (2)	2	2	32	28	Assessment courses								2
Subtotal (Autonomous development)					**10**	**10**	**160**	**140**		**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**
Total					**154.5**	**209.9**	**2479**	**3803.5**		**32.66**	**36.26**	**26.06**	**30.96**	**19.96**	**20.86**	**16.56**	**26.58**

Note:
1. S1 - S8 respectively refer to the 1st semester - the 8th semester.
2. ECTS credits = (contact hours + self-study hours) / 30;
(As the ECTS credits are rounded to one decimal place, the "total" item cannot form a perfect 1:30 ratio with "ECTS credits" and "contact hours + self-study hours".)
3. The self-directed development courses require a minimum of 10 credits. The current course schedule temporarily distributes the credits and hours from the 4th semester to the 8th semester. The actual situation is as follows:
(1) Students can choose the corresponding courses in any semester (S1 - S8).
(2) Students in natural science fields should select 2 credits each from humanities and social sciences, art and sports, and innovation and entrepreneurship.
(3) Other self-directed development courses (including cultural quality education and cross-disciplinary elective courses) should be no less than 4 credits.

(2) **Course schedule for the semeste**r

<table>
<tr><th colspan="13">The first academic year</th></tr>
<tr><td rowspan="2"></td><td rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td rowspan="2">Chinese CP</td><td rowspan="2">ECTS CP</td><td colspan="2">Workload</td><td rowspan="2"></td><td rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td rowspan="2">Chinese CP</td><td rowspan="2">ECTS CP</td><td colspan="2">Workload</td></tr>
<tr><td>Contact hours</td><td>Self-study hours</td><td>Contact hours</td><td>Self-study hours</td></tr>
<tr><td rowspan="11">S1</td><td>9123311011</td><td>Ideological and Moral Cultivation and Legal Basis</td><td>3</td><td>3.1</td><td>48</td><td>44</td><td rowspan="11">S2</td><td>9124311041</td><td>Outline of Modern Chinese History</td><td>3</td><td>2.9</td><td>48</td><td>38</td></tr>
<tr><td>9054111011</td><td>College English (1)</td><td>3</td><td>3.6</td><td>48</td><td>60</td><td>9054111021</td><td>College English (2)</td><td>3</td><td>3.6</td><td>48</td><td>60</td></tr>
<tr><td>9103811010</td><td>University Physical Education and Health (1)</td><td>1</td><td>1.1</td><td>32</td><td>0</td><td>9103811020</td><td>University Physical Education and Health (2)</td><td>1</td><td>1.1</td><td>32</td><td>0</td></tr>
<tr><td>9092112011</td><td>Advanced Mathematics A (1)</td><td>4.5</td><td>5</td><td>72</td><td>78</td><td>9092112021</td><td>Advanced Mathematics A (2)</td><td>5</td><td>5.5</td><td>80</td><td>85</td></tr>
<tr><td>9063313063</td><td>C Language Programming A</td><td>5</td><td>5.3</td><td>80</td><td>78</td><td>9065112011</td><td>College Physics (1)</td><td>3</td><td>3.6</td><td>48</td><td>60</td></tr>
<tr><td>9063111011</td><td>Introduction to Artificial Intelligence</td><td>1.5</td><td>1.3</td><td>24</td><td>16</td><td>9065212030</td><td>College Physics Experiment</td><td>0.5</td><td>1.1</td><td>16</td><td>16</td></tr>
<tr><td>9061313011</td><td>Circuit Analysis</td><td>4</td><td>4</td><td>64</td><td>56</td><td>9061312031</td><td>C++ Programming Language</td><td>3</td><td>3.5</td><td>48</td><td>57</td></tr>
<tr><td>9132315030</td><td>Admission Education and Military Training</td><td>0</td><td>3.6</td><td>24</td><td>84</td><td>9061313021</td><td>Analog Electronic Technology</td><td>4</td><td>6.4</td><td>64</td><td>128</td></tr>
<tr><td>9191311010</td><td>National Security Education</td><td>1</td><td>1</td><td>16</td><td>14</td><td>9163311010</td><td>Basics of Innovation and Entrepreneurship</td><td>1.5</td><td>1.7</td><td>23</td><td>29</td></tr>
<tr><td>9125111040</td><td>Situation and Policy (1)</td><td>0.25</td><td>0.16</td><td>4</td><td>1</td><td>9132311020</td><td>Military Theory for College Students</td><td>2</td><td>1.8</td><td>36</td><td>18</td></tr>
<tr><td>9161715010</td><td>Electronic and Electrical Practice A</td><td>1</td><td>1.6</td><td>24</td><td>24</td><td>9131311010</td><td>Mental Health Education for College Students</td><td>1.5</td><td>2.1</td><td>32</td><td>30</td></tr>
</table>

	Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours		Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours
	9151311010	Career Development and Employment Guidance for College Students (1)	0.5	1	20	10		9125111040	Situation and Policy (2)	0.25	0.16	4	1
	9061615010	Electronics Technology Internship and Electronic Product Assembly and Debugging Internship	1	1.9	24	32		9061615020	Analog Unit Circuit Simulation and Development Comprehensive Practical Training Internship	1	2	24	36
								9051111050	Practical Writing	1	0.8	16	7
	Total class hours for the semester		**25.75**	**32.66**	**480**	**497**		**Total class hours for the semester**		**29.75**	**36.26**	**519**	**565**

<div align="center">

The second academic year

</div>

	Course Code	Course Name	Chinese CP	ECTS CP	Workload			Course Code	Course Name	Chinese CP	ECTS CP	Workload	
					Contact hours	Self-study hours						Contact hours	Self-study hours
S1	9121311021	Basic Principles of Marxism	3	2.9	48	38	**S2**	9122311081	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	3	2.8	48	36
	9054111031	College English Extension Series (1)	1.5	1.9	24	32		9128311071	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3	3.1	48	46

9103811030	University Physical Education and Health (3)	0.5	0.7	20	0	9054111041	College English Extension Series (2)	1.5	1.9	24	32
9092112051	Linear Algebra	2.5	3	40	50	9103811040	University Physical Education and Health (4)	0.5	0.7	20	0
9065112021	College Physics (2)	3	3.6	48	60	9092112061	Probability Theory and Mathematical Statistics	2	2.5	32	43
9061313031	Digital Electronic Technology	3.5	4.2	56	69	9061313041	Signals and Systems	4	4.4	64	68
9061112041	Functions of Complex Variables	1.5	1.9	24	33	9061313081	Principle and Application of Microcontroller	3.5	4.4	56	76
9063313083	Data Structure	4.5	5.1	72	80	9061313051	High Frequency Electronic Circuits	3.5	4.7	56	86
9125111040	Situation and Policy (3)	0.25	0.16	4	1	9162715010	Metalworking Practice A	1	1.5	24	20
9061615030	Digital Unit Circuit Simulation and Development Comprehensive Practical Training Internship	1	2.6	24	54	9125111040	Situation and Policy (4)	0.25	0.16	4	1
						9061615040	Microcontroller System Comprehensive Practical Training Internship	1	2.8	12	71
						9171824020	Humanities and Social Sciences	2	2	32	28
Total class hours for the semester		**21.25**	**26.06**	**360**	**417**	**Total class hours for the semester**		**25.25**	**30.96**	**420**	**507**

					Workload							Workload	
	Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours		Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours

The third academic year

	Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours		Course Code	Course Name	Chinese CP	ECTS CP	Contact hours	Self-study hours
S1	9061312010	PCB Design and Drawing	2	2	32	28	**S2**	9062313021	Communication Fundamentals	3.5	4.3	56	72
	9061313061	Digital Signal Processing	3.5	4	56	64		9061324040	FPGA Principles and Applications	3	3.8	48	66
	9061324010	STM32 Electronic System Design and Engineering Application	2	3.4	32	70.5		9061324050	Principles and Applications of Embedded Systems	4	5	64	86
	9061324020	Robot Development	3	3.5	48	57		9125111040	Situation and Policy (6)	0.25	0.16	4	1
	9125111040	Situation and Policy (5)	0.25	0.16	4	1		9061615060	Embedded System Comprehensive Practical Training Internship	1	2.4	12	60
	9061615050	Electronic System Engineering Practical Training Internship	1	2.3	9	61		9141315010	Social Practice and Volunteer Service	1	3.2	8	88
	9151311020	Career Development and Employment Guidance for College Students (2)	0.5	1	18	12		9163824020	Innovation and Entrepreneurship	2	2	32	28
	9133315010	Labor education for college students	1	1.6	5	42							
	9171824030	Art and Physical Education	2	2	32	28							
Total class hours for the semester			**15.25**	**19.96**	**236**	**363.5**	**Total class hours for the semester**			**14.75**	**20.86**	**224**	**401**

						The fourth academic year								
	Course Code	Course Name	Chinese CP	ECTS CP	Workload			Course Code	Course Name	Chinese CP	ECTS CP	Workload		
					Contact hours	Self-study hours						Contact hours	Self-study hours	
	9061615070	Graduation Internship	6	14.4	32	400		9061515010	Graduation Comprehensive Training	12	24.4	136	595	
	9125111040	Situation and Policy (7)	0.25	0.16	4	1		9125111040	Situation and Policy (8)	0.25	0.18	4	1	
		Others (1)	2	2	32	28			Others (2)	2	2	32	28	
S1							**S2**							
	Total class hours for the semester		**8.25**	**16.56**	**68**	**429**		**Total class hours for the semester**		**14.25**	**26.58**	**172**	**624**	

10. Talent Training Standards Implementation Matrix

Table 10-1 Support Matrix of Graduation Requirements and Training Objectives

Training Objectives Graduation Requirements	Training Objective 1	Training Objective 2	Training Objective 3	Training Objective 4
Graduation Requirements 1	H			
Graduation Requirements 2		H		
Graduation Requirements 3		H		
Graduation Requirements 4	M	H		
Graduation Requirements 5		H		
Graduation Requirements 6		H		
Graduation Requirements 7	M			
Graduation Requirements 8	M			
Graduation Requirements 9	H		M	
Graduation Requirements 10		H	H	H
Graduation Requirements 11			H	H
Graduation Requirements 12	M	M	M	M

Note: The support for graduation requirements and training objectives is represented by "H (high support), M (medium support), and L (low support)," respectively. H represents direct support, M represents indirect support, and L represents related support.

Table 10-2 Matrix of General Education and Public Courses Supporting Graduation Requirements for the 2025 Undergraduate Talent Development Program (Engineering Majors)

Course Name	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/ Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
Ideological and Moral Cultivation and Legal Basis	H	H																								H	H	H									
Outline of Modern Chinese History	H	H																								H	H	H									
Basic Principles of Marxism	H	H																								H	H	H									
Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	H	H																								H	H	H									
Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	H	H																								H	H	H									
Situation and Policy (1) - (8)	H	H																								H	H	H									
National Security Education	H	H														H		H					H	H	H												
Military Theory for College Students	H	H																								M	M	M							H	H	H

Course Name	Graduation Requirements																																				
	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
Practical Writing																							M						H								
Mental Health Education for College Students																													H			M			H	M	H
University Physical Education and Health (1)																													H			M			H	M	H
University Physical Education and Health (2)																													H			M			H	M	H
University Physical Education and Health (3)																													H			M			H	M	H
University Physical Education and Health (4)																													H			M			H	M	H
Introduction to Artificial Intelligence																H	M	L	L																		
Career Development and Employment Guidance for College Students (1)																										H			M			M			H		
Career Development and Employment																										H			M			M			H		

Course Name	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/ Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
Guidance for College Students (2)																																					
Basics of Innovation and Entrepreneurship																														H			M				H
College English (1)																			M								H								L		
College English (2)																			M								H								L		
College English Extension Series (1)																				M										H						L	
College English Extension Series (2)																				M										H						L	
Advanced Mathematics A (1)			H				H																														
Advanced Mathematics A (2)			H				H																														
Linear Algebra			H				H																														
Probability Theory and Mathematical Statistics			H				H																														
Functions of Complex Variables			H	H	L	M	H						M																								
College Physics (1)			H	H	L	M	H						M																								

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Graduation Requirements

Course Name	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
College Physics (2)													M	H		M									M	M	H	L									
C Language Programming A																H	M	L	L																		
Circuit Analysis													H			M																					
Data Structure							H							H																							
Analog Electronic Technology													H			M																					
Digital Electronic Technology													H			M																					
Signals and Systems													H			M																					
Communication Fundamentals							H							H																							
PCB Design and Drawing			H					H		H						H										H											
C++ Programming Language														H																		H	H				
High Frequency Electronic Circuits													H			M																					
Digital Signal Processing							H							H																							
Principle and Application of Microcontroller			H																																		
STM32 Electronic							H			H					H																						

Course Name	Graduation Requirements																																				
	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/ Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
System Design and Engineering Application																																					
Robot Development														H			H															H					
FPGA Principles and Applications																H											H						H				
Principles and Applications of Embedded Systems			H											H																							
Labor education for college students	H	H																	H		M												H				H
Admission Education and Military Training	H	H																															H				H
Social Practice and Volunteer Service	H	H																															H				H
Metalworking Practice A															H												H									H	
Electronic and Electrical Practice A															H												H									H	
Electronics Technology Internship and Electronic Product Assembly and Debugging Internship							H								H												H									H	

Course Name	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/ Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
Analog Unit Circuit Simulation and Development Comprehensive Practical Training Internship															H												H									H	
Digital Unit Circuit Simulation and Development Comprehensive Practical Training Internship															H												H									H	
Microcontroller System Comprehensive Practical Training Internship												H			H												H									H	
Electronic System Engineering Practical Training Internship											H				H												H									H	
Embedded System Comprehensive Practical Training Internship												H			H												H									H	
Graduation Internship										H	H	H			H	H											H			H		H				H	
Graduation Comprehensive										H	H	H			H	H											H			H		H				H	

Course Name	1 Thought Morality		2 Engineering knowledge				3 Problem Analysis			4 Design/ Development Solution			5 Research			6 Use Modern Tools			7 Engineering and Sustainable Development				8 Engineering Ethics and professional norms			9 people and team			10 Communication			11 Project Management			12 Lifelong Learning		
	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	10.1	10.2	10.3	11.1	11.2	11.3	12.1	12.2	12.3
Training																																					
Humanities and Social Sciences																							H												H		
Art and Physical Education																										H									H		
Innovation and Entrepreneurship																										H			H			H					
Others (1)																										H									H		
Others (2)																										H									H		

Note: 1) The graduation requirements in this table are based on the Engineering Education Accreditation Standards (2024 Edition). Since the standards do not break down the graduation requirements, the decomposed indicators in this table refer to the Engineering Education Accreditation Standards (2022 Edition).

2) Graduation requirement breakdown indicators 6.3/6.4 correspond to 7.1/7.2 in the Engineering Education Accreditation Standards (2022 Edition).

11. Logical relationship topology diagram of professional course system

Logical relationship topology diagram of professional course system