Instructive Cultivation Plan for the Program of Intelligence Science and Technology

(Grade 2019)

Course code: 080907T

1. Orientation

The program of intelligent science and technology is mainly oriented to intelligent information processing, training application-oriented technical and innovative talents who can be engaged in intelligent data analysis, intelligent system application development and other artificial intelligence related works.

2. Cultivation Objective

1.General Objective

According to the orientation of application-oriented university and combining with our school's "career-oriented higher education" philosophy, this program is based on artificial intelligence technology, takes intelligent information processing as the starting point, and aims at cultivating application-oriented technical and innovative talents who love for the motherland, are comprehensively developed on the aspects of morality, intelligence, physical education, beauty and labor, are able to systematically master the basic theories, basic knowledge, basic skills and methods of artificial intelligence, have the ability to analyze problems, solve problems, and self-learning and innovation, have strong project practice capabilities, are able to adapt to the development of artificial intelligence technology, and can be engaged in the development and design, engineering application, and engineering management, etc. of intelligent data analysis, intelligent system application development, etc. in the fields of industrial Internet, finance, technology, artificial intelligence and so on.

2.Cultivation Value

This program is guided by the professionalism of software engineers and the spirit of model workers in the new era, and will cultivate students with team spirit and collaboration ability; standardized and standardized code writing habits; reusability and modular thinking ability; and the ability to understand the actual needs of customers. At the same time, students will develop good test habits and the ability to learn and summarize through the study.

3. Five-Year Goal after Graduation：

(1) Be able to complete product design, compile and manage complex programs, and become a qualified programmer;

(2) Be able to have a good ability to write requirements analysis, solutions, system software and hardware configuration and other programs;

(3) Continue to learn relevant business knowledge and have the ability of a junior software engineer.

3. Requirement for Graduation

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

1.1. Learn and master basic mathematical knowledge and theories in advanced mathematics, linear algebra, discrete mathematics, probability theory and mathematical statistics, and the

mathematical foundation of artificial intelligence, etc.;

1.2. Learn and master basic engineering technologies and applications of foundation of programming design, data structure and algorithm, algorithm design and analysis, data mining technology, and deep learning, etc.;

1.3. Learn and master the professional core knowledge of speech recognition and natural language processing, computer vision, human-computer interaction, humanoid robots and their applications in the development of humanoid robots.

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

2.1. Be able to find solutions to problems in the development of complex intelligent information processing systems through literature analysis;

2.2. Be able to use basic verification test principles to analyze the rationality and feasibility of a plan.

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

3.1. With the project as the carrier, able to design intelligent information processing systems or humanoid robot application development software through the mastered intelligent information processing methods and technologies, and be able to present them in reports, papers and other situations;

3.2. Taking into account the actual needs, in the process of intelligent information processing, enhance innovation and obtain patent applications.

4. Research: Be able to study complex engineering problems based on scientific principles and by using scientific methods, including designing experiments, analyzing and interpreting data, and obtaining reasonable and effective conclusions through information synthesis.

4.1. Aiming at complex intelligent information processing problems, be able to design a feasible experimental plan through the professional knowledge and ability learned, and be able to collect data sets by using intelligent information collection technology;

4.2. Be able to analyze and interpret data by using technologies such as data mining in intelligent processing, and draw effective conclusions.

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

5.1. Be able to choose and use a modern technology and engineering tool in the field of machine learning according to the needs of intelligent information processing problems;

5.2. Be able to use modern tools selected to simulate, analyze and predict complex information processing problems, and understand the limitations of the tools used and the improvement strategies.

6. Engineering and society: Be able to conduct reasonable analysis based on engineering-related

background knowledge, evaluate the impact of professional engineering practices and complex engineering problem solutions on society, health, safety, law, and culture, and understand the responsibilities that should be undertaken.

6.1. Familiar with the technical standards, intellectual property rights, laws and regulations related to computers and artificial intelligence, and have the basic qualities to engage in related works in this program;

6.2. Be able to objectively evaluate the impact of intelligent science and technology projects on society, health, safety, law and culture.

7. Environment and sustainable development: Be able to understand and evaluate the impact of engineering practice for complex engineering problems on the environment and sustainable development of society.

7.1. Understand the connotation and significance of environmental protection and sustainable social development, and be able to practice the concepts of environmental protection and sustainable development in the process of solving intelligent information processing problems;

7.2. Be able to evaluate the potential hazards to humans and the environment for actual engineering projects, and can use professional knowledge to propose constructive and scientific solutions.

8. Professional norms: Have humanities and social science literacy and a sense of social responsibility, be able to understand and abide by engineering professional ethics and norms in engineering practices, and can perform their responsibilities.

8.1. Have humanities and social sciences, establish a good sense of social responsibility, love life, actively practice the socialist core value system, and have a sense of responsibility and mission to promote social progress;

8.2. Understand the professional nature and responsibilities of software and system development engineers, have legal awareness and consciously abide by professional ethics and norms in social work practices.

9. Individuals and teams: Be able to assume the roles of individuals, team members and leaders in a team with a multidisciplinary background.

9.1. Highlight the advantages of multidisciplinary and interdisciplinary, and be competent in the roles and responsibilities of individuals and members of the team under a multidisciplinary background;

9.2. Be able to organize team members to carry out works in a multidisciplinary background.

10. Communication: Be able to effectively communicate and exchange with industry colleagues and the public on complex engineering issues, including writing reports and design manuscripts, making statements, expressing clearly or responding to instructions; have a certain international perspective, and be able to communicate and exchange in a cross-cultural context.

10.1. Be able to express their ideas orally or in writing, and can effectively communicate and exchange with industry colleagues and the public on complex engineering issues;

10.2. Master at least one foreign language, have a basic understanding on the international situation of intelligent science and related fields, and be able to communicate and exchange in a cross-cultural context.

11. Project management: Understand and master the principles of engineering management and

economic decision-making methods, and be able to apply them in a multi-disciplinary environment.

11.1. Understand and master important engineering management principles and economic decision-making methods involved in intelligent science and technology;

11.2. Be able to apply relevant engineering management principles and economic decision-making methods in a multidisciplinary environment.

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

12.1. Be able to correctly understand the necessity of self-exploration and learning, have the awareness of autonomous learning and life-long learning; master the methods of autonomous learning, understand the ways of knowledge expansion and ability improvement, and be able to maintain interest in new technologies;

12.2. Be able to take appropriate methods for independent learning, adapt to development, and be able to show the effectiveness of independent learning and exploration according to personal or professional development needs.

4. Schooling System

Four-year undergraduate education

5. Length of Study

Generally four years. The length of schooling can be flexible from no less than three years to no longer than six years.

6. Requirements for Graduation and Degree Conferring

Students of this program must complete the minimum credits required for each category of courses and complete all the content specified in extracurricular class according to the requirements of the instructional training plan, and the total credits must reach 151 credits for graduation; those who meet the requirements for bachelor's degree can be conferred bachelor degree in engineering.

7. Discipline

Computer Science and Technology

8. Core Courses

1. Foundation of Programming Design

This course mainly teaches the basic concepts and basic techniques of programming. Taking C language as an example, this course requires students to be more proficient in its grammar and semantics and master the basic methods of structured programming. The knowledge points of this course include data types, control structures, functions, arrays, files, operating mechanisms and preliminary debugging. Through the study of this course, students will master some common programming design skills, master programming techniques of top-down refinement, cultivate good programming habits and styles, and be able to master the basic process of computer programming operations, as well as the basic methods of eliminating grammatical and semantic errors.

2. Data structure and algorithm

This course mainly teaches data construction methods and algorithms for operating these data structures. The focus of this course is on various typical data structures and their storage structures, related algorithms and basic spatiotemporal analysis, including linear tables and their derived structures (stacks, queues, strings and multidimensional arrays), trees and graphs, and typical algorithms for search and internal sorting. The focus is to enable students to further master more standardized algorithm design skills and improve their logic thinking skills on the basis of the existing programming capabilities.

3. Mathematical foundation of artificial intelligence

This course mainly teaches the relevant mathematical knowledge needed in the learning process of artificial intelligence or machine learning. It mainly explains in detail from three aspects: probability and statistical inference, matrix, convex optimization. The key contents include: eigenvalues and matrix decomposition, common probability distributions, kernel functions, information entropy and activation functions, regression analysis, hypothesis testing, correlation analysis, and variance analysis. The focus is to enable students to further master the professional mathematics knowledge required for learning artificial intelligence on the basis of advanced mathematics, probability theory and mathematical statistics, improve their mathematics application ability, and lay a foundation for subsequent professional courses.

4. Fundamentals of Artificial Intelligence

This course mainly describes the basic concepts and basic techniques of artificial intelligence. The main contents include: history of artificial intelligence, problem representation and solution, expert systems, reasoning methods, machine learning methods, as well as explanation learning, analog learning, concept learning, machine learning and other major symbolic learning methods. Through the study of this course, students will be able to understand the concepts, research fields, and main applications of artificial intelligence; master problem representation, search and other reasoning and solving techniques; understand the structure and construction methods of expert systems; understand new theories and methods of artificial intelligence, the development trend and the basic ethics in the field of artificial intelligence.

5. Machine learning

This course mainly introduces the machine learning related content and its implementation technology involved in intelligent science and technology, specifically including: data preprocessing, classification prediction, association mining, cluster analysis, etc. Through the study of this course, students will understand the overall overview of machine learning technology, understand the main applications of machine learning and current research hot issues, understand the development direction of machine learning, and master the basic concepts, algorithm principles and technical methods.

6. Deep learning

This course mainly introduces the basic knowledge and implementation tools of deep learning. The contents of this course mainly include: simple neural network, backward propagation algorithm and its implementation, activation function and loss function, and commonly used optimization methods, such as gradient descent method, stochastic gradient method, etc. This course focuses on enabling students to understand the development of deep learning, the main application areas, basic concepts and principles of deep learning, and be able to apply deep learning tools to solve natural language processing and image processing problems.

7. Data mining technology

This course mainly introduces the data mining related content and implementation technology involved in intelligent science and technology, specifically including: data preprocessing, classification prediction, association mining, cluster analysis, etc. Through the study of this course,

students will understand the overall overview of data mining technology, understand the main applications of data mining technology and current research hot issues, understand the development direction of data mining technology, and master the most basic concepts, algorithm principles and technical methods.

8. Automatic speech recognition and natural language processing

This course is the core course of intelligent science and technology program, mainly about the basic principles and main implementation methods of speech recognition and natural language understanding. The contents of this course include: regular expressions, part-of-speech tagging, syntactic analysis, HMM algorithms, information extraction, and machine translation, etc., intending to learn and understand natural language from the perspective of statistical learning. Through the study of speech recognition and natural language understanding, students will master the basic knowledge, basic principles and basic methods of natural language processing, and cultivate students' ability to use modern tools to realize natural language understanding and solve practical problems.

9. Humanoid robot

As a professional course of intelligence and science and technology, this course mainly teaches the brief history and concepts of machine intelligence and robots; discusses the characteristics, research ideas and research contents of various machine simulation research methods, including structure simulation, function simulation, behavior simulation, mechanism simulation, and the integration of these intelligent simulation methods. Students will learn the mathematical foundation of robot mathematics, representation and solution of robot motion equations, robot dynamics equations, and robot programming, as well as the cutting-edge issues, including machine emotions, intelligent information networks, intelligent robots and unsolved problems, so as to further stimulate students' interest and enthusiasm in the subject field and build professional self-confidence.

9. Practical Training (Related courses)

Program design and practice, social practice, data structure and algorithm course practice, database system course practice, artificial intelligence course practice, object-oriented technology practice, intelligent statistical technology course practice, humanoid robot course practice, data mining technology course practice, humanoid robot comprehensive design, graduation practice and graduation design (thesis).

10. Course Structure and Course Hours (excluding extracurricular class)

Category	Total Credit	%	Total Course Hours	Theory Learning	Practical Training
Public Course	51	34	976	908	68
Basic Course	26	17	416	366	50
Professional Course	24	16	352	238	114
Practical Training	39	26	936	0	936
General Course	10	7	160	160	0
Total	150	100	2840	1672	1168
Theory : Practice(%)	59：41				

11. Teaching Schedule (1)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester
Public Course	Required	School of Marxism	b1080001	Basic principles of Marxism	test	3	48	42	6	Spring semester 1
	Required	School of Marxism	b1080003	Ideological and moral cultivation and legal foundation	non-test	3	48	42	6	Spring semester 1
	Required	School of Marxism	b1080006	Outline of Chinese Modern History	non-test	3	48	42	6	Autumn semester 1
	Required	School of Marxism	b1080004	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	test	3	48	42	6	Autumn semester 2
	Required	School of Marxism	b1080007	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics II	test	2	32	28	4	Spring semester 2
	Required	School of Marxism	-----	Situation and Policy (Module 1～4)	non-test	2	32	28	4	Autumn semester 1～Spring semester 2
	Required	College of Arts and Sciences	b1020080	Advanced Mathematics A1	test	4	64	64		Autumn semester 1
	Required	College of Arts and Sciences	b1020081	Advanced Mathematics A2	test	4	64	64		Spring semester 1
	Required	College of Arts and Sciences	b1020012	Linear algebra	test	2	32	32		Autumn semester 2
	Required	College of Arts and Sciences	b1020013	Probability Theory and Mathematical Statistics	test	2	32	32		Autumn semester 2
	Required	College of Arts and Sciences	b1020018	College Chinese	non-test	2	32	32		Spring semester 1
	Required	College of Arts and Sciences	b1020063	College Physics A(Module 2)	test	3	48	48		Spring semester 1
	Required	College of Arts and Sciences	b1020065	College Physics B	test	2	32	32		Autumn semester 2
	Required	College of Arts and Sciences	b1020066	College Physics C	non-test	1	32		32	Autumn semester 2
	Required	College of Arts and Sciences	b1020035	College chemistry	non-test	1	32	28	4	Spring semester 1
	Required	Department of Physical Education	-----	Physical Education I～VI	non-test	3	160	160		Autumn semester 1～Autumn semester 4
	Required	Others	b1110003	Military skills	non-test	0.5	2W			Autumn semester 1
	Required	College of Arts and Sciences	b1110002	Military theory	non-test	0.5	32	32		Autumn semester 2
	★English (Selective 1 Module 10 credits)	Module A	b1020003	General English III	test	3	48	48		Autumn semester 1
			b1020004	General English IV	test	3	48	48		Spring semester 1
			b1020005	General Academic English A	test	2	32	32		Autumn semester 2
			---	English development	non-test	2	32	32		Spring semester 2
		Module B	b1020002	General English II	test	3	48	48		Autumn semester 1
			b1020003	General English III	test	3	48	48		Spring semester 1
			b1020006	General Academic English B	test	2	32	32		Autumn semester 2
			---	English development	non-test	2	32	32		Spring semester 2
		Module C	b1020001	General English I	test	4	64	64		Autumn semester 1
			b1020002	General English II	test	3	48	48		Spring semester 1
			b1020003	General English III	test	3	48	48		Autumn semester 2
	★German	College of Arts and Sciences	b1020040	German I	test	3	48	48		Autumn semester 1
		College of Arts and Sciences	b1020041	German II	test	3	48	48		Spring semester 1
		College of Arts and Sciences	b1020042	German III	test	4	64	64		Autumn semester 2
	★Japanese	College of Arts and Sciences	b1020077	Japanese I	test	3	48	48		Autumn semester 1
		College of Arts and Sciences	b1020078	Japanese II	test	3	48	48		Spring semester 1
		College of Arts and Sciences	b1020079	Japanese III	test	4	64	64		Autumn semester 2
Sub-total (Public Course)						51	976	908	68	
General Course	Selective	Others	b0-----	Social Science and Humanities Literacy (4 credits) Natural Science and Technological Innovation (4 credits) Public Art (2 credits)	non-test	10	160	160		Autumn, spring
Sub-total (General Course)						10	160	160		

(★Note: The first foreign language has a total of 10 credits, including College English, German, and Japanese. Choose the appropriate language according to your needs; among them, if you choose College English, please choose the appropriate module in module ABC)

11. Teaching Schedule (2)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester
Basic Course	Required	College of Engineering	b2012182	Introduction to Intelligent Science and Technology	Non-test	1	16	16	0	Autumn semester 1
	Required	College of Engineering	b2012018	Foundation of Programming Design	Test	4	64	40	24	Autumn semester 1
	Required	College of Engineering	b2012084	Data structure and algorithm	Test	3	48	48	0	Spring semester 1
	Required	Engineering Training Center	b2090006	Fundamentals of Circuit Analysis	Test	2	32	32	0	Spring semester 1
	Required	College of Engineering	b2012088	Introduction to Database System	Test	2	32	28	4	Autumn semester 2
	Required	College of Engineering	b2012105	Design and Analysis of Algorithms	Test	2	32	26	6	Autumn semester 2
	Required	College of Arts and Sciences	b1020022	Discrete mathematics	Non-test	2	32	32	0	Spring semester 2
	Required	College of Engineering	b2012046	Principles of Computer Organization	Test	3	48	42	6	Spring semester 2
	Required	College of Engineering	b2012201	Fundamentals of Artificial Intelligence	Test	2	32	32	0	Spring semester 2
	Required	College of Engineering	b2012045	Computer network	Test	3	48	42	6	Autumn semester 3
	Required	College of Engineering	b2012016	Operating system	Test	2	32	28	4	Spring semester 3
Sub-total (Basic Course)						26	416	366	50	
Professional Course	Required	College of Engineering	b2012202	Object-oriented programming	Non-test	3	48	36	12	Autumn semester 2
	Required	College of Engineering	b2012027	Humanoid robot	Non-test	3	48	30	18	Spring semester 2
	Required	College of Engineering	b2012152	Smart Statistics Technology	Non-test	2	32	20	12	Autumn semester 3
	Required	College of Engineering	b2012070	Introduction to Software Engineering	Test	2	32	28	4	Autumn semester 3
	Required	College of Engineering	b2012147	Automatic speech recognition and natural language processing	Non-test	2	32	24	8	Autumn semester 3
	Required	College of Engineering	b2012092	Data mining technology	Non-test	2	32	20	12	Autumn semester 3
	Required	College of Engineering	b2012203	Computer vision	Non-test	2	32	20	12	Spring semester 3
	Required	College of Engineering	b2012250	Deep learning	Non-test	2	32	20	12	Spring semester 3
	Required	College of Engineering	b2012251	Knowledge discovery and recommendation	Non-test	2	32	20	12	Spring semester 3
	Required	College of Engineering	b2012252	Text processing and analysis	Non-test	2	32	20	12	Autumn semester 4
	Sub-total (required professional courses)					22	352	238	114	
	★Selective by module 2 credits	Module A	b2012068	Human-computer interaction technology	Non-test	2	32	20	12	Spring semester 3
		Module B	b2012204	Foundation of big data technology	Non-test	2	32	32		Spring semester 3
	Sub-total (professional module courses)					2	32	32		
Sub-total (professional courses)						24	384	270	114	

11. Teaching Schedule (3)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester
Practical Training	Required	Engineering Training Center	b4090002	Basic Engineering Training B	Non-test	2	48		48	Autumn semester 1
	Required	College of Engineering	b4012005	Program design and practice	Non-test	2	48		48	Spring semester 1
	Required	College of Engineering	b4012050	Data structure and algorithm course internship	Non-test	2	48		48	Summer semester 1
	Required	College of Engineering	b4012054	Database system course practice	Non-test	2	48		48	Spring semester 2
	Required	College of Engineering	b4012030	Computer network course internship	Non-test	2	48		48	Spring semester 3
	Required	College of Engineering	b4000020	Innovation and Entrepreneurship in Intelligent Science and Technology	Non-test	2	48		48	Spring semester 3
	Required	College of Engineering	b4012042	Artificial intelligence internship	Non-test	2	48		48	Summer semester 2
	Required	College of Engineering	b4012152	Object-oriented programming internship	Non-test	2	48		48	Summer semester 2
	Required	College of Engineering	b4012105	Comprehensive design of network program	Non-test	2	48		48	Autumn semester 3
	Required	College of Engineering	b4012018	Humanoid robot course internship	Non-test	2	48		48	Autumn semester 3
	Required	College of Engineering	b4012109	Smart Statistics Technology course internship	Non-test	2	48		48	Spring semester 3
	Required	College of Engineering	b4012056	Data mining technology course internship	Non-test	3	72		72	Summer semester 3
	Required	College of Engineering	b4012082	Humanoid robot comprehensive design	Non-test	2	48		48	Summer semester 3
	Required	College of Engineering	b4012084	Intelligent Science and Technology Major Graduation Practice and Graduation Design (Thesis)	Non-test	12	288		288	Spring semester 4
Sub-total (Practical Training)						39	936		936	
Extracurricular Class	Required	Others	b5110001	Extracurricular Class	Non-test	1	-	-	-	Autumn, spring, summer
Total						151	2840	1672	1168	

★1. Guidance for selecting professional module and practical module:

Professional courses are divided into modules according to different ability requirements. Students must select one of the modules and obtain the required credits for that module. Professional practice modules must be selected according to the corresponding professional course modules.

1. Module A: Service Robot Module

2. Module B: Data Application Development Module

2. Professional Certificates can be gained after learning following courses:

Students who have passed the Foundation of Programming Design, Program design and practice courses can participate in the vocational qualification certificate assessment related to the program.

Students who have obtained a software engineer qualification certificate can apply for exemption from the Introduction to Software Engineering course and obtain corresponding credits.

12. Schedule for Semesters(Suggested)

Autumn semester 1：

Type	Course Name	Assessment	Credit	Course Hour
Required	Outline of Chinese Modern History	Non-test	3	48
Required	First Foreign Language	Test	3	48
Required	Advanced Mathematics A1	Test	4	64
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education I	Non-test	0.5	32
Required	Military skills	Non-test	0.5	2W
Required	Introduction to Intelligent Science and Technology	Non-test	1	16
Required	Foundation of Programming Design	Test	4	64
Required	Basic Engineering Training B	Non-test	2	48

Spring semester 1：

Type	Course Name	Assessment	Credit	Course Hour
Required	Basic principles of Marxism	Test	3	48
Required	Ideological and moral cultivation and legal foundation	Non-test	3	48
Required	First Foreign Language	Test	3	48
Required	Advanced Mathematics A2	Test	4	4
Required	College Physics A	Test	3	48
Required	College chemistry	Non-test	1	32
Required	College Chinese	Non-test	2	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education II	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Data structure and algorithm	Test	3	48
Required	Fundamentals of Circuit Analysis	Test	2	32
Required	Program design and practice	Non-test	2	48

Summer semester 1：

Type	Course Name	Assessment	Credit	Course Hour
Required	Data structure and algorithm course internship	Non-test	2	48

Autumn semester 2：

Type	Course Name	Assessment	Credit	Course Hour
Required	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	Test	3	48
Required	Military theory	Non-test	0.5	32
Required	First Foreign Language	Test	2	32
Required	Linear algebra	Test	2	32
Required	Probability Theory and Mathematical Statistics	Test	2	32
Required	College Physics B	Test	2	32
Required	College Physics C	Non-test	1	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education III	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Introduction to Database System	Test	2	32
Required	Design and Analysis of Algorithms	Test	2	32
Required	Object-oriented programming	Non-test	3	48

Spring semester 2：

Type	Course Name	Assessment	Credit	Course Hour
Required	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics II	Test	2	32
Required	First Foreign Language	Non-test	2	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education IV	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Discrete mathematics	Non-test	2	32
Required	Principles of Computer Organization	Test	3	48
Required	Fundamentals of Artificial Intelligence	Test	2	32
Required	Humanoid robot	Non-test	3	48
Required	Database system course practice	Non-test	2	48

Summer semester 2：

Type	Course Name	Assessment	Credit	Course Hour
Required	Artificial intelligence internship	Non-test	2	48
Required	Object-oriented programming internship	Non-test	2	48

Autumn semester 3：

Type	Course Name	Assessment	Credit	Course Hour
Required	Physical Education V	Non-test	0.5	16
Selective	General Course	Non-test	2	32
Required	Computer network	Test	3	48
Required	Smart Statistics Technology	Non-test	2	32
Required	Introduction to Software Engineering	Test	2	32
Required	Automatic speech recognition and natural language processing	Non-test	2	32
Required	Data mining technology	Non-test	2	32
Required	Comprehensive design of network program	Non-test	2	48
Required	Humanoid robot course internship	Non-test	2	48

Spring semester 3：

Type	Course Name	Assessment	Credit	Course Hour
Required	Innovation and Entrepreneurship in Intelligent Science and Technology	Non-test	2	48
Required	Operating system	Test	2	32
Required	Computer vision	Non-test	2	32
Required	Deep learning	Non-test	2	32
Required	Knowledge discovery and recommendation	Non-test	2	32
Selective	Human-computer interaction technology	Non-test	2	32
Selective	Foundation of big data technology	Non-test	2	32
Required	Computer network course internship	Non-test	2	48
Required	Smart Statistics Technology course internship	Non-test	2	48

Summer semester 3：

Type	Course Name	Assessment	Credit	Course Hour
Required	Data mining technology course internship	Non-test	3	72
Required	Humanoid robot comprehensive design	Non-test	2	48

Autumn semester 4：

Type	Course Name	Assessment	Credit	Course Hour
Required	Physical Education VI	Non-test	0.5	16
Required	Text processing and analysis	Non-test	2	32

Spring semester 4：

Type	Course Name	Assessment	Credit	Course Hour
Required	Intelligent Science and Technology Major Graduation Practice and Graduation Design (Thesis)	Non-test	12	288

13. Prerequisite for Course Study

No.	Course Name	Prerequisite Course	No.	Course Name	Prerequisite Course
1	Data structure and algorithm	Foundation of Programming Design	6	Computer vision	Foundation of Programming Design
					Data mining technology
2	Operating system	Data structure and algorithm	7	Comprehensive design of network program	Data structure and algorithm
					Object-oriented programming
					Foundation of Programming Design
3	Introduction to Database System	Data structure and algorithm	8	Humanoid robot comprehensive design	Humanoid robot
					Automatic speech recognition and natural language processing
					Computer vision
4	Object-oriented programming	Foundation of Programming Design	9	Introduction to Software Engineering	Foundation of Programming Design
		Data structure and algorithm			Object-oriented programming
5	Design and Analysis of Algorithms	Foundation of Programming Design	10	Text processing and analysis	Foundation of Programming Design
		Data structure and algorithm			Data mining technology
					Deep learning

14. Extracurricular Class

Through taking extracurricular classes, students are encouraged to take part in academic lectures, social practice activities, campus cultural and sports activities, innovative and entrepreneurial activities, voluntary activities, etc. to improve their social adaptability and enhance the competitiveness in the job market. Details are specified in Students' Manual.