Training Program of Computer Science and Technology of General Computer College (2020)

1 Professional information

Major name: Computer Science and Technology Subject Category: Engineering

Length: 4 years Degree awarded: Bachelor of Engineering

2 train objective

This major to carry out the party's education policy, adhere to khalid ents, aims to face the national major strategic needs and national economic development needs, cultivate morality, intelligence and physique comprehensive development of the socialist cause qualified builders and reliable successors, training with "public" spirit, innovation ability, international vision, team cooperation and communication skills, independent learning and lifelong learning ability, system master the computer basic theory, professional methods and basic skills, can engage in computer system structure, computer network, computer software and computer application technology of scientific research, engineering development, education and management of high-quality innovative talents.

Students trained in this major can meet the following requirements about five years after graduation:

Training goal 1: has a solid basic knowledge of mathematics, natural science and engineering, system to master computer basic theory, professional methods and basic skills, have the effective use of professional knowledge, the use of modern tools to analyze the computer system structure, computer network, computer software and computer application technology of the ability of complex computer engineering problems.

Training objective 2: to master the design and development methods of computer hardware and software systems, have a good sense of innovation, can apply scientific principles, adopt scientific methods, choose modern tools for the research, design and development of new theories, new systems, new software and new equipment in the field of computer.

Training goal 3: with nankai "public" spirit, good humanistic quality, noble professional ethics and social responsibility, can correctly evaluate computer engineering practice and complex computer engineering problem solution to society, health, safety, legal and cultural influence, understand the influence of computer engineering practice on the environment and social sustainable development, consciously perform the duties of the computer professional engineer.

Training objective 4: Good communication skills, team spirit and project management skills, able to lead team members or as the backbone of the team to carry out computer engineering practice, able to effectively communicate and communicate with industry peers and the public on complex computer engineering issues. Training objective 5: Have the ability of multi-disciplinary integration, independent learning and lifelong learning, international vision and cross-cultural communication ability, be able to quickly adapt to the multi-disciplinary environment and the rapid development of the computer industry, and continuously enhance their own ability of scientific research, engineering development, education and management.

3 Graduation requirements

(1) Engineering knowledge: Be able to use mathematics, natural science, engineering foundation and computer expertise to solve complex computer engineering problems.

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

(3) Design / development solutions: Ability to design solutions to complex computer engineering problems, design computer systems, hardware units or software modules to meet specific needs, and to be innovative in the design process, considering social, health, safety, legal, cultural and environmental factors.

(4) Research: Be able to study complex computer engineering problems based on scientific principles and using scientific methods, including the design of experiments, analysis and interpretation of data, and obtain reasonable and effective conclusions through information synthesis.

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

(6) Engineering and society: To be able to analyze reasonably based on the background knowledge of complex computer engineering, evaluate the impact of computer engineering practice and the solution of complex computer engineering problems on society, health, safety, law and culture, and understand the responsibilities.

(7) Environment and sustainable development: Be able to understand and evaluate the impact of engineering practices for complex computer engineering problems on environmental and social sustainable development.

(8) Professional norms: with humanities and social science literacy, social responsibility, nankai "public ability" spirit, able to understand and abide by engineering professional ethics and norms in computer engineering practice, and fulfill responsibilities.

(9) Individual and team: able to assume roles as individual, team members and principals in a computer engineering team in a multidisciplinary context.

(10) Communication: Ability to effectively communicate with industry peers and the public on complex computer engineering issues, including writing reports and design documents, presentations, clarifying or responding to instructions. And has a certain international vision, can communicate and exchange in a cross-cultural background.

(11) Project management: to understand and master the principles of computer engineering management and economic decision-making methods, and can be applied in a multidisciplinary environment.

(12) Lifelong learning: have the consciousness of independent learning and lifelong learning, and have the ability of continuous learning and adaptation to development.

4 Professional core courses

High-level language programming, digital logic, Data structure, Probability Theory and Mathematical Statistics, computer composition principle, database system, operating system, computer network, software engineering, introduction to algorithms, compilation system principle, computer architecture, discrete mathematics.

5 Main practice links

Computer system design, innovation research and training, practice, graduation thesis (design), advanced language programming 2-1, advanced language programming 2-2, digital logic, data structure, database system, introduction to algorithm, computer composition principle, computer network, operating system, computer architecture, computer compilation system principle, parallel program design, introduction to artificial intelligence, software security, software engineering and other professional course experiment.

6 teaching program

Classify	Course code	Course title	Credit	Class semester	It is recommended to study Designated time	Whether compulsory	The opening depart	Remarks
Higher Mathematics B level	AMTD0012	1 Unary function integrals (letter)	3	1		Yes	Higher Mathematics Teaching Department	
	AMTD0013	2 Unary function differential (letter)	3	1		Yes	Higher Mathematics Teaching Department	
	AMTD0010	3 Field theory and infinite series (letter)	3	2		Yes	Higher Mathematics Teaching Department	
	AMTD0011	4 Multivariate function calculus (letter)	3	2		Yes	Higher Mathematics Teaching Department	
		Credit small plan	12					
Check Thought Politics Theory State owned Respect Certainly Embellish Class	IPTD0015	5 Ideological and moral cultivation and legal basis	2.5	1		Yes	Marxist basic Theory Teaching Department	
	IPTD0016	6 situation and policy	2	1	1,2,3,4,5,6,7,8	Yes	Marxist basic Theory Teaching Department	
	MTD0005	7 Military skills training	2	1		Yes	Military teaching and research section	
	IPTD0012	8 Public can practice	2	1,2,3,4,5,6		Yes	Marxist basic Theory Teaching Department	
	IPTD0017	9 An Introduction to the basic principles of Marxism	3.5	2	2	Yes	Marxist basic Theory Teaching Department	
	MTD0003	10 military theory	2	2	2	Yes	Military teaching and research section	
	IPTD0013	11 Essentials of Chinese Modern History	2.5	3	3	Yes	Marxist basic Theory Teaching Department	
	IPTD0014	12 MAO Zedong Thought and the theoretical system of socialism with Chinese characteristics	3.5	4	4	Yes	Marxist basic Theory Teaching Department	
	IPTD0018	13 An Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	2	5		Yes	Marxist basic Theory Teaching Department	
		Credit small plan	22					
State owned Respect Flowe Language Public English is compulsory basic English	ENTD0020	14 basic English IB	2.5	1	1	Deny	The Public English Teaching Department	
	ENTD0021	15 basic English IC	2.5	1	1	Deny	The Public English Teaching Department	
	ENTD0022	16 basic English IA	2.5	1	1	Deny	The Public English Teaching Department	
		Required credits	2.5					
	ENTD0001	17 basic English IIC	2.5	2	2	Deny	The Public English Teaching Department	
	ENTD0029	18 basic English IIB	2.5	2	2	Deny	The Public English Teaching Department	
	ENTD0033	19 basic English IIA	2.5	2	2	Deny	The Public English Teaching Department	
		Required credits	2.5					

		II							
			Required credits		5				
	Public English elective courses	Language skills module	ENTD0018	20 advanced English I	2	3	3	Deny	The Public English Teaching Department
			ENTD0045	21 English-Chinese Dual Translation Practice 1	2	3		Deny	The Public English Teaching Department
			ENTD0036	22 Public Speaking	2	3,4		Deny	The Public English Teaching Department
			ENTD0037	23 English-Chinese dual-direction translation practice	2	3,4		Deny	The Public English Teaching Department
			ENTD0043	24 English-Chinese language awareness and translation	2	3,4		Deny	The Public English Teaching Department
			ENTD0041	25 advanced English II	2	4	4	Deny	The Public English Teaching Department
			Required credits		0				
		Thematic English module	ENTD0034	26 Academic exchange English	2	3,4		Deny	The Public English Teaching Department
			ENTD0035	27 academic English writing	2	3,4		Deny	The Public English Teaching Department
			ENTD0039	28 Practical English linguistics	2	3,4		Deny	The Public English Teaching Department
			ENTD0042	29 English rhetoric and way of thinking	2	3,4		Deny	The Public English Teaching Department
			ENTD0050	30 Academic English audio-visual theory	2	3,4		Deny	The Public English Teaching Department
			Required credits		0				
		Cultural literacy module	ENTD0038	31 Western fantasy literature	2	3,4		Deny	The Public English Teaching Department
			ENTD0044	32 Beyond culture —— an overview of Chinese and Western culture	2	3,4		Deny	The Public English Teaching Department
			ENTD0046	33 Of American society and culture	2	3,4		Deny	The Public English Teaching Department
			ENTD0048	34 Western classics, film, television and culture	2	3,4		Deny	The Public English Teaching Department
			ENTD0049	35 Cultural conflict and fusion in Western films	2	3,4		Deny	The Public English Teaching Department
			ENTD0051	36 English idioms and English culture	2	3,4		Deny	The Public English Teaching Department
			Required credits		0				
		Required credits			4				
	Credit small plan				9				
	University Physics Curriculum (group Name)		CPTD0007	37 University basic physics experiment	2	2		Yes	University of Physics and Experiments
		Credit small plan			2				
	University Chinese		LITE0266	38 College Chinese (Science and Technology)	2	5		Yes	College of Liberal Arts
		Credit small plan			2				
	Physical culture				4				
	Credit small plan				51				
Big class base Base course			ARIN0014	39 linear algebra	4	1		Yes	Institute of Artificial Intelligence
			COSC0002	40 High-level language programming 2-1	3.5	1		Yes	School of computer science
			COSC0039	41 High-level language programming 2-2	2.5	2		Yes	School of computer science
			ELEC0203	42 University of Physics (I)	4	2		Yes	School of Electronic Information and Optical Engineering
			ELEC0204	43 fundamentals of circuit	3.5	2		Yes	School of Electronic Information and Optical Engineering
			SOFT0186	44 Professional cognitive guidance	1	2		Yes	School of software
			Credit small plan		18.5				
Professional compulsory course			COSC0020	45 dissertation	6	8	8	Yes	School of computer science
			COSC0007	46 data structure	3.5	3	3	Yes	School of computer science
			COSC0012	47 Probability theory and mathematical statistics	4	3	3	Yes	School of computer science
			COSC0014	48 discrete mathematics	4	3	3	Yes	School of computer science
			COSC0041	49 digital logic	3.5	3	3	Yes	School of computer science
			COSC0013	50 database system	3.5	4	4	Yes	School of computer science
			COSC0015	51 Introduction to artificial intelligence	2.5	4	4	Yes	School of computer science
			COSC0016	52 Introduction to algorithms	3.5	4	4	Yes	School of computer science
			COSC0025	53 concurrent programming	2.5	4	4	Yes	School of computer science
			COSC0043	54 Principle of computer composition	3.5	4	4	Yes	School of computer science
			CSSE0027	55 software security	2.5	4	4	Yes	The Academy of Cyberspace Security
			COSC0009	56 operating system	3.5	5	5	Yes	School of computer science
			COSC0010	57 computer network	3.5	5	5	Yes	School of computer science
			COSC0017	58 Compile system principles	3.5	5	5	Yes	School of computer science

	COSC 0018	59 computer architecture	3.5	5	5	Yes	School of computer science	
	COSC 0030	60 Internship training	2	5	5	Yes	School of computer science	
	COSC 0011	61 Innovative research and training	1	6	6	Yes	School of computer science	
	COSC 0019	62 Computer system design	2	6	6	Yes	School of computer science	
	COSC 0048	63 software engineering	2.5	6	6	Yes	School of computer science	
	Credit small plan		**60.5**					
Professional elective courses	COSC 0001	64 natural language processing	2.5	7	7	Deny	School of computer science	
	COMP 0150	65 Verilog Program design	1	3	3	Deny	Academy of Cyberspace Security	
	COSC 0022	66 The Java Language and Application	2.5	3	3	Deny	School of computer science	
	COSC 0038	67 digital signal processing	2	3	3	Deny	School of computer science	
	COSC 0056	68 Python Language programming	2.5	3	3	Deny	School of computer science	
	COSC 0057	69 Go Language and application	2.5	3	3	Deny	School of computer science	
	COSC 0059	70 Frontier technology in computer science	1	3	3	Deny	School of computer science	
	CSSE0026	71 Assembly language and reverse techniques	2.5	3	3	Deny	Academy of Cyberspace Security	
	COSC 0024	72 Internet database development	1	4	4	Deny	School of computer science	
	COSC 0026	73 computational method	2	4	4	Deny	School of computer science	
	COSC 0027	74 Foundation of visualization techniques	2.5	4	4	Deny	School of computer science	
	CSSE0037	75 Embedded system	2.5	4	4	Deny	Academy of Cyberspace Security	
	COSC 0028	76 Machine learning and applications	2.5	5	5	Deny	School of computer science	
	COSC 0032	77 Principle of the information retrieval system	2.5	5	5	Deny	School of computer science	
	CSSE0038	78 Network technology and application	2.5	5	5	Deny	Academy of Cyberspace Security	
	CSSE0042	79 Blockchain foundation and applications	2.5	5	5	Deny	Academy of Cyberspace Security	
	COSC 0029	80 Foundation of computer vision	2.5	6	6	Deny	School of computer science	
	COSC 0033	81 Big data computing and application	2	6	6	Deny	School of computer science	
	COSC 0054	82 Deep learning and application	2.5	6	6	Deny	School of computer science	
	COSC 0055	83 computer graphics	2.5	6	6	Deny	School of computer science	
	CSSE0010	84 Intelligent computing system	2.5	6	6	Deny	Academy of Cyberspace Security	
	CSSE0017	85 digital image processing	2.5	6	6	Deny	Academy of Cyberspace Security	
	Required credits		**20**					
General elective course			13					
Total			**163**					
Remarks								