Undergraduate Program for Specialty of Software Engineering

Ⅰ. Length of Schooling

Standard: 4 years; Length of Schooling: 3-6 years

Ⅱ. Degree

Bachelor of Engineering

Ⅲ. Specialty Orientation

School of Software engineering insists the party's education policy and the socialist direction of running universities, follows the country's economic development and industry demand, relys on the research advantage of Beijing Jiaotong university, makes full use of National Demonstration School of Software Engineering advantages, faces the needs of the development of software industry. It uses enhancing professional quality as a fundamental, training the ability of software engineering as the core, grasping the knowledge and technology needed by competent roles as the goal, aims to cultivate elite software engineer with "High-quality, Internationalization, High engineering ability and Creative consciousness". School of Software engineering try to gradually enhance the professional advantages, get into the domestic top levels, and improve the international reputation.

Ⅳ. Program Objectives

The software engineering major of Beijing Jiaotong University cultivates the elites engaged in software development (technology and management), technology application services and technical research for industry, research institutes and educational organization as well as government. The elites should have the following professional abilities and skills:

(1) Have the innovation sense and social mission, broad and international professional vision, and achieve certain ability levels in computing thinking, critical thinking and system thinking.

(2) Be able to cognize the problems from different perspectives of society, business, environment, economy, law, governance, ethics, etc., and be able to recognize and define the complex engineering problems by using scientific and systematic methods such as quantitative , experimental and empirical analysis.

(3) Be able to conduct effective communications and productive work independently in the cross-disciplinary and cross-culture team, and show certain leadership in the following areas: ① conceive creative and valuable systems or solutions, and be competent in the product manager position; ② provide design and optimization plan via researches on

method/technology optimization, and be competent in the software architect position; ③ effectively organize a team and push the implementation of project, and be competent in project manager and QA manager position; ④ provide value-added operational services for customers based on existing software technology and system platform, and be competent in software service consultant or engineer position.

(4) Be able to quickly adjust self to varying environment and actively embrace challenges , and behave under the professional ethics and engineering standards; have certain professional technical insight and vision, have the desire, ability and skill of lifelong learning, and have the potential in sustainable development of professional career.

Ⅴ. Requirements of Graduation

(1) Differentiating Characteristic Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and a software engineering specialization to the solution of complex software engineering problems.

(2) Problem Analysis: Identify, formulate, research literature and analyze complex software engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

(3) Design/ development of solutions: Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

(4) Investigation: Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

(5) Use modern tools: Students can focus on complex software engineering problems, and develop, select, and use appropriate technologies, resources, tools of modern software engineering and information technologies. Besides, students can conduct the prediction and simulation of complex software engineering problems, and understand their limitations.

(6) Engineering and society：Students can apply engineering-related background knowledge to reasonably analyze software engineering practice and solutions of complex software engineering problems. Besides, students can evaluate their effects on society, health, security, laws, and culture. In addition, students must understand responsibilities that they should undertake.

(7) Environment and Sustainability: have the ability to understand and evaluate the impact of engineering practice about complex engineering issues on environmental and social sustainability.

(8) Professional ethics: have a humanities and social science literacy, social responsibility, understand and comply with engineering ethics and norms and fulfill their responsibilities in engineering in practice.

(9) Individual and Team work: have the ability to take on individual, team member and

leader in a team with multidisciplinary settings.

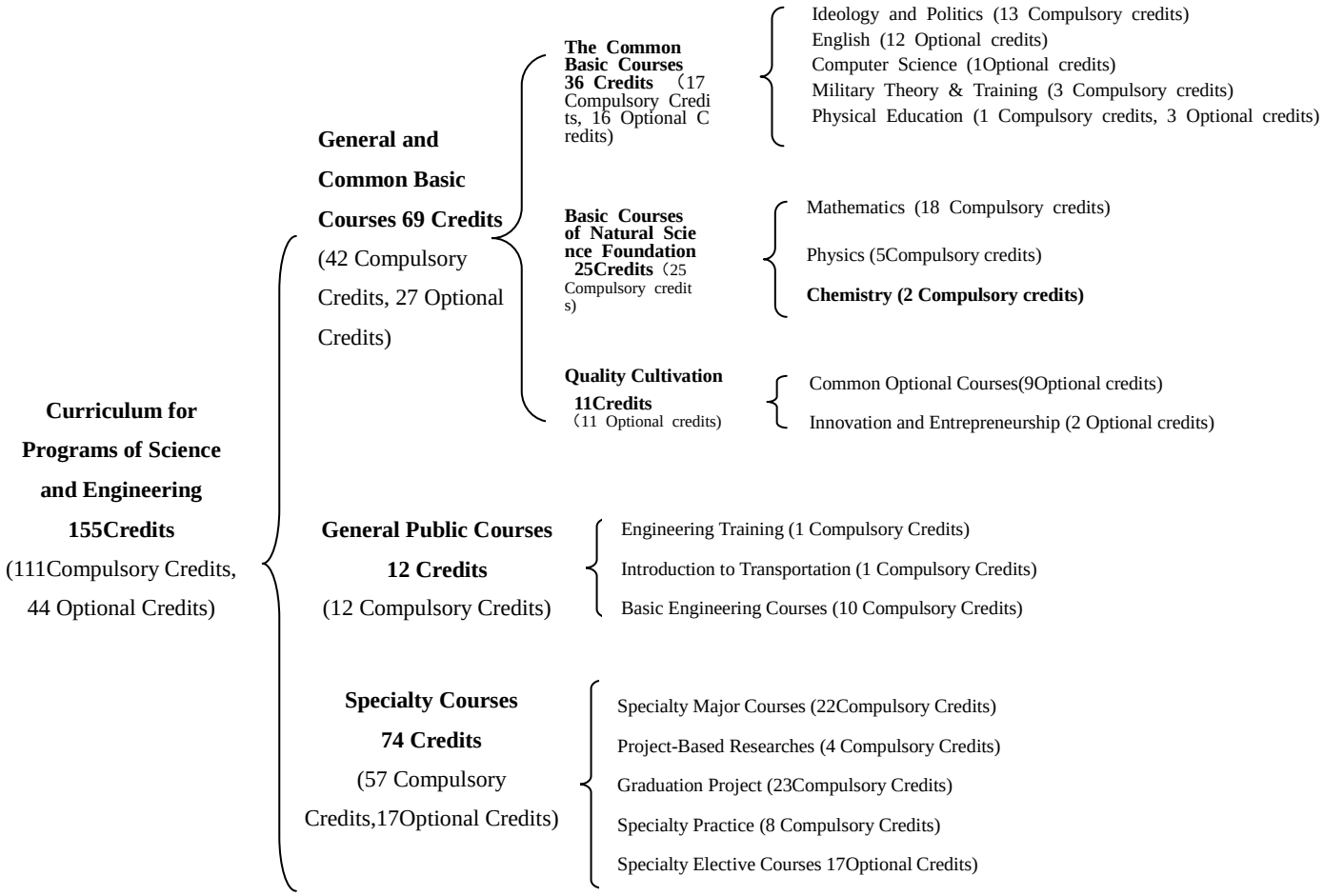
(10) Communication: be able to conduct communication and discussion on complex software engineering problems with the industry and public, including writing reports and designing documents, making statements, giving clear presentations, and providing responses to comments. Also need to have a certain international vision, and conduct communication and discussion under cross-cultural background.

(11) Project management: understand and master the software engineering management principle and economic decision method, and apply them in multiple subjects and environments.

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

VI. Curriculum System and Allocation of Credits

The curriculum system includes three modules: General and Common Basic Courses, General Public Courses and Specialty Courses. The detailed settings are shown in the following figure.



Tab. 1Curriculum System and Allocation of Credits

Course Modules	Course Category		Theoretical Teaching			Practical Teaching			Theoretical or Practical Credits	Total
			Compulsory	Optional	Total	Compulsory	Optional	Total		
General and Public Basic Courses	Public Basic Courses	Ideology and Politics	12		12	1		1		13
		English							12	12
		Computer Science		1	1					1
		Military Theory & Training	0.5		0.5	2.5		2.5		3
		Physical Education				1	3	4		4
	Basic Courses of Natural Science Foundation	Mathematics	18		18					18
		Physics	4		4	1		1		5
		Chemistry	2		2					2
	Abilities								11	11
Total			36.5	1	37.5	5.5	3	8.5	23	69
General Public Courses	Engineering Training					1		1		1
	Introduction to Transportation		1		1					1
	Engineering Basic Courses /General Basic Courses		8		8	2		2		10
Total			9		9	3		3		12
Specialty Courses	Specialty Major Courses		22		22					22
	Project-Based Researches					4		4		4
	Graduation Project					15		15		15
	Specialty Practice					8		8		8
	Comprehensive Training					8		8		8
	Specialty Elective			17	17					16
Total			22		38	35		35		73
Total			67.5	18	85.5	43.5	3	46.5	23	155
Distribution of Credits			Percentage of Compulsory Credits (%)	72%	Percentage of Optional Credits(%)	28%	Percentage of Theoretical Teaching(%)	70%	Percentage of Practical Teaching(%)	45%

VII. Main Courses

Tab. 2Main Courses

No.	Course Code	Course Name	Credit(s)	Hours
1	A0L237Q	Object-Oriented Programming and Design	2	32
2	A0L323Q	Introduction to Software Engineering	2	32
3	A0L238Q	Data Structure	2	32
4	A0L268Q	Discrete Mathematics	2	32
5	A0L242Q	Computer Network	2	32
6	A0L240Q	Operating System	2	32
7	A0L241Q	Database System	2	32
8	A0L128Q	Software System Analysis and Design	2	32
9	A0L248Q	Software Architecture	2	32
10	A0L168Q	Software Project Management	2	32
11		Software Testing Technology and Practice	2	32

VIII.Omnibus Schedule for Teaching

Course System	Course Category		Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit (s)	Total Hours	Lecture Hours	Practice Hours	Exam / Tests	Grading Option	Prerequisite Course(s)	Semester	Credits Required
General and Public Basic Courses	Public Basic Courses	Ideology and Politics	Ideological and Moral Cultivation and Legal Basis	61L020T	Compulsory	Lecture	2.5	48	32	16	Tests	Letter		1	13
			The Outline of Chinese Modern History	61L016T	Compulsory	Lecture	2	32	24	8	Tests	Letter		2	
			Introduction to the Basic Principles of Marxism	61L021T	Compulsory	Lecture	2.5	48	32	16	Tests	Letter		3	
			Mao Zedong Thought and the Theories of Socialism with Chinese Characteristics	61L022T	Compulsory	Lecture	3	64	32	32	Tests	Letter		4	
			Social Practice of Ideological and Political Theory	61S021T	Compulsory	Practice	1	2Weeks		2Weeks	Tests	Pass / Fail		5	
			Situation and Policy	61L007T	Compulsory	Lecture	2	32	16	16	Tests	Pass / Fail		1-7	
		English	Preliminary College English	62L211T	Optional	Lecture	4	80	64	16	Tests	Letter		1-3	12
			Elementary College English	62L212T	Optional	Lecture	4	80	64	16	Tests	Letter			
			Intermediate College English	62L213T	Optional	Lecture	4	80	64	16	Tests	Letter			
			Advanced College English	62L214T	Optional	Lecture	4	80	64	16	Tests	Letter			
			Senior English Courses		Optional	Lecture	4	80	64	16	Tests	Letter			
			English Competence	62L215T	Optional	Lecture	12				Tests	Letter		1-8	
		Computer	Fundamentals of Computer	85L073T	Optional	Lecture	1	32	16	16	Tests	Pass / Fail		1	1
		Military Theory & Training	Military Theory	00L133T	Compulsory	Lecture	0.5	16	16		Tests	Pass / Fail		1	3
			Military Training	00S001T	Compulsory	Practice	2.5	18Days		18Days	Tests	Pass / Fail		1	
		Physical Education	Physical Education Ⅰ	60L009T	Compulsory	Practice	1	32		32	Tests	Letter		1	4
			Physical Optional Courses		Optional	Practice	3	96		96	Tests	Pass / Fail		2-6	
	Math	Mathematic	Calculus (B) Ⅰ	73L187Q	Compulsory	Lecture	6	96	96		Exam	Numeric		1	25

	and Science courses	s	Calculus (B) Ⅱ	73L178Q	Compulsory	Lecture	5	80	80		Exam	Numeric		2	
			Geometry and Algebra (B)	73L160Q	Compulsory	Lecture	3.5	56	56		Exam	Numeric		1	
			Probability and Mathematical Statistics (B)	73L168Q	Compulsory	Lecture	3.5	56	56		Exam	Numeric		4	
		Physics	University Physics(A) Ⅰ	73L149Q	Compulsory	Lecture	4	64	64		Exam	Numeric		2	
			Experiments in Physics Ⅰ	73S194Q	Compulsory	Practice	1	32		32	Tests	Letter		2	
		Chemistry	General Chemistry	73L170Q	Compulsory	Lecture	2	32	28	4	Tests	Letter		1	
	Abilities	Common Optional Courses	Innovation and Entrepreneurship		Optional		2				Tests	Pass / Fail			10
			Common Optional Courses		Optional						Tests	Pass / Fail			
General Public Courses	Engineering Basic Courses		Introduction to Transportation	50L097T	Compulsory	Lecture	1	16	16		Tests	Pass / Fail		1	12
			Engineering Graphics Basis	20L181Q	Compulsory	Lecture	2	32	26	6	Tests	Letter		1	
			Electrical Technology	10L129Q	Compulsory	Lecture	2	32	26	6	Exam	Numeric		2	
			Introduction to Software Engineering Major	A0L235Q	Compulsory	Lecture	1	16	12	4	Tests	Pass / Fail		1	
			C Programming	A0L033Q	Compulsory	Lecture	3	48	32	16	Exam	Numeric		2	
			Comprehensive practice of programming design	A0S004Q	Compulsory	Practice	2	32		32	Tests	Letter		S1	
	Engineering Training		Electrical Engineering Training I	14S017T	Compulsory	Practice	1	16		16	Tests	Pass / Fail		2	

Course System	Course Category	Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit (s)	Total Hours	Lecture Hours	Practice Hours	Exam / Tests	Grading Option	Prerequisite Course(s)	Semester	Credits Required
Specialty Courses	Specialty Major Courses	Object-Oriented Programming and Design	A0L237Q	Compulsory	Lecture	2	32	32		Exam	Numeric		3	22
		Introduction to Software Engineering	A0L323Q	Compulsory	Lecture	2	32	32		Exam	Numeric		3	
		Data Structure	A0L238Q	Compulsory	Lecture	2	32	32		Exam	Numeric		4	
		Discrete Mathematics	A0L268Q	Compulsory	Lecture	2	32	32		Exam	Numeric		4	
		Computer Network	A0L242Q	Compulsory	Lecture	2	32	32		Exam	Numeric		5	
		Operating System	A0L240Q	Compulsory	Lecture	2	32	32		Exam	Numeric		5	
		Database System	A0L241Q	Compulsory	Lecture	2	32	32		Exam	Numeric		5	

		Software System Analysisand Design	A0L128Q	Compulsory	Lecture	2	32	32		Exam	Numeric		6	
		Software Architecture	A0L248Q	Compulsory	Lecture	2	32	32		Exam	Numeric		6	
		Software Project Management	A0L168Q	Compulsory	Lecture	2	32	32		Exam	Numeric		6	
		Software Testing Technology and Practice		Compulsory	Lecture	2	32	32		Exam	Numeric		6	
	Project-Based Researches	Project-Based Researches II		Compulsory	Practice	2	2Weeks		2Weeks	Tests	Letter		S2	4
		Project-Based Researches III		Compulsory	Practice	2	2Weeks		2Weeks	Tests	Letter		S3	
	Project Training Courses	Specialty Practice	A0S180Q	Compulsory	Practice	8	24Weeks		24Weeks	Tests	Letter		7-8	8
		Graduation Project		Compulsory	Practice	15	16Weeks		16Weeks	Tests	Letter		8	15
		Practice in Object-oriented and Interactive Application Development	A0S181Q	Compulsory	Practice	2	32		32	Tests	Letter		3	8
		Comprehensive Practice of Data structure and Algorithm		Compulsory	Practice	2	32		32	Tests	Letter		4	
		Comprehensive Practice on Database Application System		Compulsory	Practice	2	32		32	Tests	Letter		5	
		Comprehensive Training of System Conception and Design	A0S178Q	Compulsory	Practice	2	32		32	Tests	Letter		6	
	Specialty Elective Courses	Software and Intellectual Property Law	A0L158Q	Optional	Lecture	1	16	16		Tests	Letter		5	1
		Principles of Computer Organization	A0L328Q	Optional	Lecture	2	32	32		Tests	Letter		3	4
		Algorithm Design and Practice	A0L244Q	Optional	Lecture	2	32	32		Tests	Letter		4	
		C++ Programming	A0L245Q	Optional	Lecture	2	32	32		Tests	Letter		4	
		Information Security – Principles and Practice	A0L251Q	Optional	Lecture	2	32	32		Tests	Letter		5	
		User Interface Design and Evaluation	A0L243Q	Optional	Lecture	2	32	32		Tests	Letter		5	12
		Web Developing Technologies		Optional	Lecture	2	32	32		Tests	Letter		5	
		Mobile Application Development	A0L253Q	Optional	Lecture	2	32	32		Tests	Letter		5	
		Non-relational Database	A0L344Q	Optional	Lecture	2	32	32		Tests	Letter		5	
		Software process and improvement		Optional	Lecture	2	32	32		Tests	Letter		6	
		JavaEE Frameworks and Application	A0L252Q	Optional	Lecture	2	32	32		Tests	Letter		6	
		Linux System and Network Programming	A0L254Q	Optional	Lecture	2	32	32		Tests	Letter		6	

		Data Mining and Data Analysis		Optional	Lecture	2	32	32		Tests	Letter		6	
		Product Analysis, Design and Operation	A0L343Q	Optional	Lecture	2	32	32		Tests	Letter		6	
		Lectures on Cutting-edge Technology		Optional	Lecture	2	32	32		Tests	Pass / Fail		6	

IX. Schedule of Each Semester

Semester 1

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Military Theory	00L133T	Compulsory	Lecture	0.5	16	16		Tests	Pass / Fail			
Military Training	00S001T	Compulsory	Practice	2.5	18Days		18Days	Tests	Pass / Fail			
Ideological and Moral Cultivation and Legal Basis	61L020T	Compulsory	Lecture	2.5	48	32	16	Tests	Letter	1-16	3	
Situation and Policy	61L007T	Compulsory	Lecture					Tests	Pass / Fail			
English		Compulsory	Lecture	4	80	64	16	Tests	Letter	1-16	4	
Fundamentals of Computer	85L073T	Compulsory	Lecture	1	32	16	16	Tests	Pass / Fail			
Physical Education Ⅰ	60L009T	Compulsory	Practice	1	32		32	Tests	Letter			
Calculus (B) Ⅰ	73L187Q	Compulsory	Lecture	6	96	96		Exam	Numeric			
Geometry and Algebra (B)	73L160Q	Compulsory	Lecture	3.5	56	56		Exam	Numeric			
General Chemistry	73L170Q	Compulsory	Lecture	2	32	28	4	Tests	Letter			
Introduction to Software Engineering Major	A0L235Q	Compulsory	Lecture	1	16	12	4	Tests	Pass / Fail			
Engineering Graphics Basis	20L181Q	Compulsory	Lecture	2	32	26	6	Tests	Letter			
Introduction to Transportation	50L097T	Compulsory	Lecture	1	16	16		Tests	Pass / Fail			
Credits Recommended	22 Compulsory Credits + 5 Optional Credits											

Semester 2

Course Name	Course Code	Compulsory /	Lecture /	Credit(s)	Total	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note

		Optional	Practice		hours							
The Outline of Chinese Modern History	61L016T	Compulsory	Lecture	2	32	24	8	Tests	Letter			
Situation and Policy	61L007T	Compulsory	Lecture					Tests	Pass / Fail			
English		Optional	Lecture	4	80	64	16	Tests	Letter	1-16	4	
Optional Courses		Optional		3						1-16		
Physical Optional Courses		Optional	Practice	3				Tests	Pass / Fail			
Calculus (B) Ⅰ	73L178Q	Compulsory	Lecture	5	80	80		Exam	Numeric			
University Physics(A) Ⅰ	73L149Q	Compulsory	Lecture	4	64	64		Exam	Numeric			
Experiments in Physics Ⅱ	73S194Q	Compulsory	Practice	1	32		32	Tests	Letter			
Electrical Engineering Training I	14S017T	Compulsory	Practice	1	16		16	Tests	Pass / Fail			
C Programming	A0L033Q	Compulsory	Lecture	3	48	32	16	Exam	Numeric			
Electrical Technology	10L129Q	Compulsory	Lecture	2	32	26	6	Exam	Numeric	1-8		
Credits Recommended	18 Compulsory Credits + 8 Optional Credits											

Summer Session 1

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Comprehensive practice of programming design	A0S004Q	Compulsory	Practice	2	32		32	Tests	Letter			
Credits Recommended	2 Compulsory Credits + 0 Optional Credits											

Semester 3

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note

Introduction to the Basic Principles of Marxism	61L021T	Compulsory	Lecture	2.5	48	32	16	Tests	Letter			
Situation and Policy	61L007T	Compulsory	Lecture					Tests	Pass / Fail			
English		Optional	Lecture	4	80	64		Tests	Letter	1-16		
Optional Courses		Optional		4						1-16		
Physical Optional Courses		Optional	Practice	3				Tests	Pass / Fail			
Object-Oriented Programming and Design	A0L237Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-8		
Introduction to Software Engineering	A0L323Q	Compulsory	Lecture	2	32	32		Exam	Numeric			
Practice in Object-oriented and Interactive Application Development	A0S181Q	Compulsory	Practice	2	32		32	Tests	Letter	9-16		
Principles of Computer Organization	A0L328Q	Optional	Lecture	2	32	32		Tests	Letter			
Credits Recommended	8.5 Compulsory Credits + 11 Optional Credits											

Semester 4

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Mao Zedong Thought and the Theories of Socialism with Chinese Characteristics	61L022T	Compulsory	Lecture	3	64	32	32	Tests	Letter			
Situation and Policy	61L007T	Compulsory	Lecture					Tests	Pass / Fail			
Optional Courses		Optional		4						1-16		
Physical Optional Courses		Optional	Practice	3				Tests	Pass / Fail			
Probability and Mathematical Statistics (B)	73L168Q	Compulsory	Lecture	3.5	56	56		Exam	Numeric			
Data Structure	A0L238Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-8		
Discrete Mathematics	A0L268Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-8		
Comprehensive Practice of Data structure and Algorithm		Compulsory	Practice	2	32		32	Tests	Letter	9-16		
C++ Programming	A0L245Q	Optional	Lecture	2	32	32		Tests	Letter			
Algorithm Design and Practice	A0L244Q	Optional	Lecture	2	32	32		Tests	Letter	9-16		
Credits Recommended	12.5 Compulsory Credits + 7 Optional Credits											

Summer Session 2

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Project-Based Researches II		Compulsory	Practice	2	2Weeks		2Weeks	Tests	Letter			
Credits Recommended	2 Compulsory Credits + 0 Optional Credits											

Semester 5

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Social Practice of Ideological and Political Theory	61S021T	Compulsory	Practice	1	2Weeks		2Weeks	Tests	Pass / Fail			
Situation and Policy	61L007T	Compulsory	Lecture					Tests	Pass / Fail			
Optional Courses		Optional								1-16		
Physical Optional Courses		Optional	Practice	3				Tests	Pass / Fail			
Computer Network	A0L242Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-8		
Operating System	A0L240Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-8		
Database System	A0L241Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-8		
Comprehensive Practice on Database Application System		Compulsory	Practice	2	32		32	Tests	Letter	9-16		
Software and Intellectual Property Law	A0L158Q	Optional	Lecture	1	16	16		Tests	Letter			
Information Security – Principles and Practice	A0L251Q	Optional	Lecture	2	32	32		Tests	Letter	9-16		
User Interface Design and Evaluation	A0L243Q	Optional	Lecture	2	32	32		Tests	Letter			
Web Developing Technologies		Optional	Lecture	2	32	32		Tests	Letter			
Mobile Application Development	A0L253Q	Optional	Lecture	2	32	32		Tests	Letter			
Non-relational Database	A0L344Q	Optional	Lecture	2	32	32		Tests	Letter			
Credits Recommended	9 Compulsory Credits + 9 Optional Credits											

Semester 6

Course Name	Course Code	Compulsory /	Lecture /	Credit(s)	Total	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note

		Optional	Practice		hours							
Situation and Policy	61L007T	Compulsory	Lecture					Tests	Pass / Fail			
Optional Courses		Optional								1-16		
Physical Optional Courses		Optional	Practice	3				Tests	Pass / Fail			
Software Architecture	A0L248Q	Compulsory	Lecture	2	32	32		Exam	Numeric			
Software System Analysisand Design	A0L128Q	Compulsory	Lecture	2	32	32		Exam	Numeric	1-16		
Software Project Management	A0L168Q	Compulsory	Lecture	2	32	32		Exam	Numeric			
Software Testing Technology and Practice		Compulsory	Lecture	2	32	32		Exam	Numeric			
Comprehensive Training of System Conception and Design	A0S178Q	Compulsory	Practice	2	32		32	Tests	Letter	1-16		
Software process and improvement		Optional	Lecture	2	32	32		Tests	Letter			
JavaEE Frameworks and Application	A0L252Q	Optional	Lecture	2	32	32		Tests	Letter			
Linux System and Network Programming	A0L254Q	Optional	Lecture	2	32	32		Tests	Letter			
Data Mining and Data Analysis		Optional	Lecture	2	32	32		Tests	Letter			
Product Analysis, Design and Operation	A0L343Q	Optional	Lecture	2	32	32		Tests	Letter			
Lectures on Cutting-edge Technology		Optional	Lecture	2	32	32		Tests	Pass / Fail			
Credits Recommended	10 Compulsory Credits + 6 Optional Credits											

Summer Session 3

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Project-Based Researches III		Compulsory	Practice	2	2Weeks		2Weeks	Tests	Letter			
Credits Recommended	2 Compulsory Credits + 0 Optional Credits											

Semester 7

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
Situation and Policy	61L007T	Compulsory	Lecture	2	32	16	16	Tests	Pass / Fail			
Specialty Practice		Compulsory	Practice		24Weeks		24Weeks	Tests	Letter			
Credits Recommended	2 Compulsory Credits + 0 Optional Credits											

Semester 8

Course Name	Course Code	Compulsory / Optional	Lecture / Practice	Credit(s)	Total hours	Lecture	Practice	Exam / Tests	Grading Option	Week Designated	Hour(s)/ Week	Note
English Competence	62L215T	Optional	Lecture	12				Tests	Letter			
Specialty Practice		Compulsory	Practice	8	24Weeks		24Weeks	Tests	Letter			
Graduation Project		Compulsory	Practice	15	16Weeks		16Weeks	Tests	Letter			
Credits Recommended	35 Compulsory Credits + 0 Optional Credits											

X. Correspondence of Courses with Graduation Requirements

No.	Course Name	1.Engineering Knowledge				2.Problem Analysis		3.Design/ development of solutions		4.Investigation			5.Use modern tools			6.Engineering and society		
		1.1	1.2	1.3	1.4	2.1	2.2	3.1	3.2	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3
1	Ideological and Moral Cultivation and Legal Basis															√		
2	The Outline of Chinese Modern History															√		
3	Introduction to the Basic Principles of Marxism															√		
4	Mao Zedong Thought and the Theories of Socialism with Chinese Characteristics																	
5	Social Practice of Ideological and Political Theory																	
6	Situation and Policy																	
7	Preliminary College English																	
8	Elementary College English																	
9	Intermediate College English																	
10	Advanced College English																	
11	Senior English Courses																	
12	English Competence																	
13	Fundamentals of Computer												√					
14	Military Theory																	
15	Military Training																	
16	Physical Education Ⅰ																	
17	Physical Optional Courses																	

No.	Course Name	1.Engineering Knowledge				2.Problem Analysis		3.Design/ development of solutions		4.Investigation			5.Use modern tools			6.Engineering and society		
		1.1	1.2	1.3	1.4	2.1	2.2	3.1	3.2	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3
18	Calculus (B) Ⅰ	√																
19	Calculus (B) Ⅱ	√																
20	Geometry and Algebra (B)	√																
21	Probability and Mathematical Statistics (B)	√																
22	University Physics(A) Ⅰ		√															
23	Experiments in Physics Ⅰ		√															
24	General Chemistry		√															
25	Innovation and Entrepreneurship				√													√
26	Common Optional Courses																	
27	Introduction to Transportation																	
28	Engineering Graphics Basis			√			√							√				
29	Electrical Technology				√													
30	Introduction to Software Engineering Major		√											√	√			
31	C Programming		√										√		√			
32	Comprehensive practice of programming design				√		√	√					√	√	√			
33	Electrical Engineering Training I																	
34	Object-Oriented Programming and Design		√	√		√		√		√			√		√			
35	Introduction to Software Engineering	√	√	√														
36	Data Structure		√	√				√		√					√			

No.	Course Name	1.Engineering Knowledge				2.Problem Analysis		3.Design/ development of solutions		4.Investigation			5.Use modern tools			6.Engineering and society		
		1.1	1.2	1.3	1.4	2.1	2.2	3.1	3.2	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3
37	Discrete Mathematics	√			√	√	√				√		√					
38	Computer Network	√	√	√		√	√	√		√			√	√	√	√	√	
39	Operating System		√			√		√		√					√			
40	Database System	√	√	√	√		√	√	√		√				√			
41	Software System Analysisand Design	√				√	√	√	√	√			√			√		
42	Software Architecture		√		√			√	√		√	√	√	√	√			
43	Software Project Management					√				√						√		
44	Software Testing Technology and Practice		√	√			√	√		√	√	√	√	√	√	√		
45	Project-Based Researches II	√				√		√					√			√		
46	Project-Based Researches III	√				√		√					√			√		
47	Specialty Practice	√				√												√
48	Graduation Project	√	√	√	√		√		√				√					√
49	Practice in Object-oriented and Interactive Application Development		√	√		√		√		√			√		√			
50	Comprehensive Practice of Data structure and Algorithm						√		√						√			
51	Comprehensive Practice on Database Application System	√	√	√	√		√	√	√		√							
52	Comprehensive Training of System Conception and Design				√	√	√	√	√	√	√				√	√	√	√
53	Software and Intellectual Property Law															√		

No.	Course Name	1.Engineering Knowledge				2.Problem Analysis		3.Design/ development of solutions		4.Investigation			5.Use modern tools			6.Engineering and society		
		1.1	1.2	1.3	1.4	2.1	2.2	3.1	3.2	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3
54	Principles of Computer Organization		√	√		√	√	√		√			√		√			
55	Algorithm Design and Practice		√			√		√		√					√			
56	C++ Programming																	
57	Information Security – Principles and Practice	√	√			√										√		
58	User Interface Design and Evaluation						√		√						√			√
59	Web Developing Technologies												√					
60	Mobile Application Development												√					
61	Non-relational Database												√					
62	Software process and improvement												√					
63	JavaEE Frameworks and Application					√							√					
64	Linux System and Network Programming		√	√		√	√	√		√		√	√	√	√	√		√
65	Data Mining and Data Analysis	√	√		√	√		√	√		√	√			√			
66	Product Analysis, Design and Operation					√		√		√						√		
67	Lectures on Cutting-edge Technology	√														√		

No.	Course Name	7.Environment and Sustainability			8.Professional ethics		9.Individual and Team work		10.Communication			11.Project management		12.Lifelong learning	
		7.1	7.2	7.3	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2
1	Ideological and Moral Cultivation and Legal Basis	√			√		√								
2	The Outline of Chinese Modern History														
3	Introduction to the Basic Principles of Marxism	√			√										
4	Mao Zedong Thought and the Theories of Socialism with Chinese Characteristics	√			√										
5	Social Practice of Ideological and Political Theory						√								√
6	Situation and Policy	√													
7	Preliminary College English														
8	Elementary College English														
9	Intermediate College English														
10	Advanced College English														
11	Senior English Courses														
12	English Competence								√						
13	Fundamentals of Computer														
14	Military Theory				√		√								
15	Military Training				√		√								
16	Physical Education Ⅰ				√		√								
17	Physical Optional Courses														
18	Calculus (B) Ⅰ														
19	Calculus (B) Ⅱ														

No.	Course Name	7.Environment and Sustainability			8.Professional ethics		9.Individual and Team work		10.Communication			11.Project management		12.Lifelong learning	
		7.1	7.2	7.3	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2
20	Geometry and Algebra (B)														
21	Probability and Mathematical Statistics (B)														
22	University Physics(A) Ⅰ														
23	Experiments in Physics Ⅰ														
24	General Chemistry														
25	Innovation and Entrepreneurship			√				√			√				√
26	Common Optional Courses														
27	Introduction to Transportation	√													
28	Engineering Graphics Basis														
29	Electrical Technology														
30	Introduction to Software Engineering Major					√	√			√				√	
31	C Programming														
32	Comprehensive practice of programming design						√		√	√				√	√
33	Electrical Engineering Training I														
34	Object-Oriented Programming and Design													√	√
35	Introduction to Software Engineering	√			√		√		√			√		√	
36	Data Structure									√					
37	Discrete Mathematics								√					√	√
38	Computer Network	√			√		√	√	√		√			√	√

No.	Course Name	7.Environment and Sustainability			8.Professional ethics		9.Individual and Team work		10.Communication			11.Project management		12.Lifelong learning	
		7.1	7.2	7.3	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2
39	Operating System													√	
40	Database System				√		√	√	√	√			√		√
41	Software System Analysisand Design				√		√		√			√			
42	Software Architecture						√	√		√	√			√	√
43	Software Project Management	√					√	√	√	√	√	√	√	√	
44	Software Testing Technology and Practice			√	√	√	√	√	√	√	√	√		√	√
45	Project-Based Researches II				√		√		√					√	
46	Project-Based Researches III				√		√		√					√	
47	Specialty Practice			√	√	√								√	√
48	Graduation Project				√								√		
49	Practice in Object-oriented and Interactive Application Development												√	√	√
50	Comprehensive Practice of Data structure and Algorithm									√			√		√
51	Comprehensive Practice on Database Application System				√		√	√	√	√			√		√
52	Comprehensive Training of System Conception and Design		√		√		√	√	√	√			√	√	√
53	Software and Intellectual Property Law				√										
54	Principles of Computer Organization								√						
55	Algorithm Design and Practice													√	
56	C++ Programming														
57	Information Security – Principles and Practice				√										

No.	Course Name	7.Environment and Sustainability			8.Professional ethics		9.Individual and Team work		10.Communication			11.Project management		12.Lifelong learning	
		7.1	7.2	7.3	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2
58	User Interface Design and Evaluation									√					
59	Web Developing Technologies														
60	Mobile Application Development														
61	Non-relational Database														
62	Software process and improvement				√		√		√			√			
63	JavaEE Frameworks and Application														
64	Linux System and Network Programming								√						
65	Data Mining and Data Analysis							√						√	√
66	Product Analysis, Design and Operation	√			√		√					√		√	
67	Lectures on Cutting-edge Technology	√												√	