武汉理工大学理学院

School of Science of
Wuhan University of Technology

本科专业培养方案

Undergraduate Program

（Grade 2013）

武汉理工大学教务处

Academic Affairs Office of Wuhan University of Technology

目　录

光信息科学与技术…… 14-1
Optical Information Science and Technology…… 14-1
电子信息科学与技术…… 14-8
Electronic and Information Science and Technology…… 14-8
信息与计算科学…… 14-15
Information & Computing Science…… 14-15
统计学…… 14-21
Statistics …… 14-21
工程力学…… 14-27
Engineering Mechanics …… 14-27
应用数学实验班……14-34
Applied Mathematics Experimental Class ……14-34
工程力学（卓越工程师班） ……14-40
Engineering Mechanics(Excellent Engineer Class)……14-40

光电信息科学与工程专业本科培养方案
Undergraduate Program for Specialty in Photoelectric Information Science and Engineering

一、业务培养目标

Ⅰ Educational Objectives

本专业培养德、智、体全面发展，具备光电信息科学与工程的基础理论、基本知识和基本技能，能在研究院所、高等院校、信息产业部门及其相关领域(特别是光机电算一体化产业)从事光电信息科学与工程领域的科学研究、教学、产品设计、生产技术或管理工作的高级专门人才。

Aiming at preparing all-rounded, high-quality talents with international competence, this program will enable students to be solid grounded in basic theory and fundamental skills in Photoelectric Information Science and Engineering. They can do research, teaching, product design, production technology or management in IT department research centers, colleges, information industry department and related areas (especially in Optical, Mechanical, Electronic and Computational Integration).

二、业务培养要求

Ⅱ Educational Requirement

本专业学生主要学习光电信息科学与工程的基础理论和技术，熟悉光学、电子技术和计算机技术，接受科学实验与科学思维的训练，具备本学科及相关领域的科学研究与技术开发的能力。

毕业生应具备以下几方面的知识和能力：

1. 掌握数学、物理等方面的基本理论和基本知识；
2. 掌握光学、光电子学和电子信息科学的基础知识和基本实验技能；
3. 了解相近专业的一般原理和知识；
4. 熟悉国家信息产业政策及国内外有关知识产权的法律法规；
5. 了解光电信息科学与工程的理论前沿、应用前景和最新发展动态，以及信息产业发展状况；
6. 掌握资料查询、文献检索及运用现代信息技术获取相关信息的基本方法；具有一定的实验设计，归纳、整理、分析实验结果，撰写论文，参与学术交流的能力。
7. 具有较强的外语综合应用能力，特别是听说能力。在今后工作和社会交往中能用外语进行口头和书面的信息交流，能熟练地进行外文阅读，有一定的科技外语能力。
8. 具有较强的创新意识。
9. 具有解决本学科领域内的科研及工程问题的能力。

Students of this program are mainly required to acquire basic theories and technology of photoelectric information science and engineering, who will be familiar with optics, electronics and computer technology, receive science basic trainings on scientific experiment and thinking, and have competency for science research and technological development.

The graduates are also required to acquire the knowledge or abilities as follows:

1. Acquiring solid foundation for both mathematics and physics;
2. Mastering basic principles and professional knowledge of optics, optoelectronics, electronic and information science;
3. Understanding common theory and knowledge of related fields;
4. Understanding policies of national IT industry as well as laws and regulations about intellectual property right both at home and abroad;
5. Acquiring advanced theory, application prospect and latest development of optical information science and technology;

6. Obtaining abilities for literature retrieval, information inquiry and data obtaining; having competencies for preliminary electronic design, scientific experiment, paper writing and academic exchange；

7. Obtaining the ability of foreign language application, especial in listening and speaking as well as competencies for oral and written communication in English, reading original literature and using specialized English in science and technology；

8. Acquiring strong innovation awareness.

9. The competency in solving problems in specialty of scientific research and engineering.

三、主干学科

Ⅲ Major Disciplines

主干学科：光学与光电子学、电子与信息科学

Major Disciplines：Optics and Optoelectronics, Electronic and Information Science

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：电子技术（模电、数电）、通信原理 B、光学（应用光学、物理光学）、量子力学 B、电动力学、激光原理与技术、光纤通信原理与技术、光电技术等。

Core Courses: Electronic Technology (Analogy Electronic Technology, Digital Electronic Technology), Principles of Communication B, Optics (Applied Optics, Physical Optics), Quantum Mechanics B, Electrodynamics, Principles and Techniques of Laser, Fiber Communication Theory and Technology, Optoelectronics Technology etc.

专业特色课程：光电技术、光电信息技术实验、光纤技术与传感测试、光纤通信原理与技术、光纤技术实验、激光原理与技术、激光原理与技术实验、太阳能电池原理、技术及应用

Characteristic Courses: Optoelectronic Technology, Experiment on Optoelectronic Information, Fiber Optical Sensing Technology, Fiber Communication Theory and Technology, Experiment on Fiber Technology, Principles and Techniques of Laser, Experiment on Principles and Techniques of Laser, Principles, Technology and Application of Solar cells.

五、学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：理学学士

Degree Granted: Bachelor of Science

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	46	43.5	\	21.5	\	190
选修课 Elective Courses	9	\	15	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

在专业选修课程中，建议将电子线路辅助设计、微处理器与微控制器原理 B、微处理器与微控制器应用 A 课程作为共选课程；侧重于光电系统与信息处理方向的同学建议系统修读光学仪器原理及应用、激光冷却技术及应用、数字信号处理 A 和光电图像处理等课程；侧重于光电子器件及集成技术方向的同学建议系统修读光学计算机辅助设计、固体物理 C、半导体物理、信息光学、半导体光电子学、薄膜光学、太阳能电池原理、技术及应用和绿色光源 LED 照明技术及应用等课程。

Theory of Microprocessor and Microcontroller B, Application of Microprocessor and Microcontroller A are recommended as shared elective courses. Therefore, students oriented in Optoelectronic System and Information Processing are suggested to take Laser Testing Technology, Fiber Optical Sensing Technology, Digital Signal Processing A and Photoelectric Image Processing, etc. While students oriented in Optoelectronic Device and Integration are suggested to take Computer Aided Design of Optical System, Solid State Physics C, Semiconductor Physics, Informational Optics, Semiconductor Optoelectronics, Thin Film Optics, Principles, Technology and Application of Solar cells, Green Light LED Lighting Technology and Applications, etc.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
		小 计 Subtotal		35	736	24	64	64				
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050337110	专业导论 Introduction of Specialty	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A1	
		4080041110	工程图学 B Engineering Graphics B	4	64		4			1		
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050021110	大学物理 A 上 Physics. AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics. AⅡ	3.5	56					3	大学物理 A1	
		4110018110	电路理论 Circuit Principle	4	64	8				2		
		4050466130	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050467130	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4	物理实验 A1	
		4110049110	模拟电子技术基础 B Fundamentals of Analog Electronic Circuit B	3.5	56					3		
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronic Circuit	0.5	16	16				3		
		4050182110	数学物理方法 A Method Of Mathematical Physics A	4.5	72					3		
		4110067110	数字电子技术基础 B Fundamentals of Digital Electronic Circuit B	3.5	56					4		
		4110068110	数字电子技术基础实验 Experiments of Digital Electronic Circuit	0.5	16	16				4		
		小 计 Subtotal		46	784	104	4					
专业课程 Specialized Courses	必修课 Required Courses	4050361120	C 语言综合实验 Comprehensive Experiment on C Language	1	32		32			2	计算机程序设计基	
		4050242110	应用光学 Applied Optics	2.5	40					4		
		4050243110	应用光学实验 Experiment on Applied Optics	0.5	16	16				4	应用光学	
		4050231110	信号与线性系统 Signal and Liner System	4	64	8				4	数学物理方法 A	
		4050030110	电动力学 Electrodynamics	3	48					4		
		4050415120	物理光学 Physical Optics	3.5	56					5		
		4050416120	物理光学实验 Experiment on Physical Optics	0.5	16	16				5	物理光学	
		4050133110	量子力学 B Quantum Mechanics B	3	48					5	数学物理方法 A	

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
		4050383120	光电技术 Optoelectronic Technology	3.5	56			16		5	模拟电子技术基础 B	
		4050081110	光电信息技术实验 Experiment on Optoelectronic Information Technology	1	32	32				5	光电技术	
		4050396120	面向对象程序设计 Object Oriented Programming B	4.5	72		8	16		5	计算机程序设计基础(C	
		4050409120	通信原理 Principles of Communication B	4.5	72	8		16		6	信号与线性系统	
		4050084110	光纤光学 Fiber Optics	2	32					6		
		4050384120	光纤通信原理与技术 Fiber Communication Theory and Technology	3.5	56			16		6	光纤光学	
		4050085110	光纤技术实验 Experiment on Fiber Technology	1	32	32				6	光纤光学	
		4050103110	激光原理与技术 Principles and Techniques of Laser	3	48					6		
		4050104110	激光原理与技术实验 Experiment on Principles and Techniques of Laser	0.5	16	16				6	激光原理与技术	
		4050086110	光纤技术与传感测试 Fiber Optic Sensing Technology	2	32	16				7	光纤光学	
		小 计 Subtotal		43.5	768	144	40	64				
	选修课 Elective Courses	4050111110	计算机网络 C Computer Network C	2.5	40					3		
		4050032110	电子线路辅助设计 Computer Aided Design of Electronic Circuit	1	32		32			3		
		4050003110	Matlab 仿真与应用 Matlab Simulation and Application	1	32		32			5		
		4050199110	微处理器与微控制器原理 B Theory of Microprocessor and Microcontroller B	4	64	8				5		
		4050089110	光学计算机辅助设计 Computer Aided Design of Optical System	1	32		32			6	应用光学	
		4050421120	信息光学 Informational Optics	3	48	16				6		
		4050077110	固体物理 C Solid State Physics C	3	48					6	量子力学 B	
		4050196110	微处理器与微控制器应用 A Application of Microprocessor and Microcontroller A	3.5	56	24				6	微处理器与微控制器原	
		4050008110	半导体物理 Semiconductor Physics	3	48					7	固体物理 C	
		4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				7	信号与线性系统	
		4050080110	光电图像处理 Photoelectric Image Processing	2	32					7		
		4050007110	半导体光电子学 Semiconductor Optoelectronics	2.5	40					7		
		4050013110	薄膜光学 Thin Film Optics	2	32					7		
		4050188110	太阳能电池原理、技术及应用 Principles, Technology and Application of Solar cells	2	32					7		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
		4050137110	绿色光源 LED 照明技术及应用 Green light LED Lighting Technology and Applications	2	32					7		
		4050392120	激光冷却技术与应用 Technology and Application of lasing cooling	2	32					7		
		4050386120	光学仪器原理及应用 Principles and Application of Optical Instrument	2	32					7		
		小 计 Subtotal		40.5	696	58	96					
		修读说明：要求至少选修 15 学分。 NOTE：Minimum subtotal credits: 15.										
个性课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice of Electrical Engineering and Electronics	2	2	5	
4050438120	电子综合实训Ⅰ Comprehensive training of electronics Ⅰ	2	2	3	
4050472130	电子综合实训Ⅱ Comprehensive training of electronics Ⅱ	1	1	4	
4050320110	专业调查 Professional Investigation	2	2	6	
4050277110	毕业实习 Internship	2	2	7	
4050430120	毕业设计 Graduate Design	17	11	8	
小 计 Subtotal		29	21.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

电子信息科学与技术专业本科培养方案
Undergraduate Program for Specialty in Electronic and Information Science and Technology

一、业务培养目标

Ⅰ Educational Objectives

本专业培养电子信息科学与技术高级专门人才，具备电子信息科学与技术的基础理论和基本知识，接受严格的科学实验训练和科学研究初步训练，有较强的创新意识，能够在电子、信息、计算机及相关领域和行政部门从事科学研究、教学、科技开发、产品设计、生产技术或管理的工作。

This program aims at training advanced and special talents in the field of electronic information science and technology and electronic science and technology, who should receive basic trainings on scientific experiment and research, master basic theory, knowledge and skills in electronic information science and technology, and are capable of jobs about researching, teaching, sci-tech development, engineering design or management in fields of electronics, information, computer and governmental administration.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生主要学习电子信息科学与技术的基础理论和技术，受到科学实验与科学思维的训练，具备本学科及相关领域的应用研究与技术开发的能力。

毕业生应具备以下几方面的知识和能力：

1．掌握数学、物理等方面的基础理论和基本知识；

2．掌握电子信息科学与技术、计算机科学与技术等方面的基础理论、专业知识与技能；

3．了解相近专业的一般原理和知识；

4．熟悉国家电子信息产业政策及国内外有关知识产权的法律法规；

5．了解电子信息科学与技术的理论前沿、应用前景和最新发展动态，以及电子信息产业发展状况；

6．掌握资料查询、文献检索及运用现代信息技术获取相关信息的基本方法，具有初步的电子设计、科学实验、论文撰写及学术交流的能力；

7．具有较强的外语综合应用能力，特别是听说能力。在今后工作和社会交往中能用外语进行口头和书面的信息交流，能熟练地进行外文阅读，有一定的科技外语能力；

8．具有较强的创新意识。

Students of this program are mainly required to acquire basic theory and technology of electronic information and technology, receive basic trainings on scientific experiment and thinking, and have competency for scientific research and technological development.

The graduates are also required to obtain the knowledge or abilities as follows:

1. Mastering basic theory and knowledge of both physics and mathematics;

2. Mastering basic principles and professional knowledge of electronic information science and technology together with computer science and technology;

3. Understanding common theory and knowledge of related fields;

4. Understanding policies of national IT industry as well as laws and regulations about intellectual property right both at home and abroad;

5. Acquiring advanced theory, application prospect and latest development of electronic information science and technology;

6. Acquiring abilities for literature retrieval, information inquiry and data obtaining; having competencies for preliminary electronic design, scientific experiment, paper writing and academic exchange;

7. Acquiring the ability of foreign language application, especial in listening and speaking as well as competencies for oral and written communication in English, reading original literature and using specialized English in science and technology;

8. Acquiring strong innovation awareness.

三、主干学科

Ⅲ Major Disciplines

主干学科：物理学、电子科学与技术、计算机科学与技术

Major Disciplines: Physics, Electronic Science and Technology, Computer Science and Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：电子技术(模电，数电)、通信原理 B、电动力学、量子力学 B、微波技术与天线 A、微处理器与微控制器原理 A、面向对象程序设计 B

Core Courses: Electronic Technology (Analog Electronic and Digital Electronic), Communication Principles B, Electrodynamics, Quantum Mechanics B, Microwave Technology and Antenna A, Theory of Microcontroller and Microprocessor A, Object-Oriented Programming B

专业特色课程：量子力学 B、微波技术与天线 A、电磁兼容原理与应用、半导体物理、射频识别技术与应用

Characteristic Courses: Quantum Mechanics B, Microwave Technology and Antenna A, Principle and Application of EMC, Semiconductor Physics, RFID technology and Application

五、学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：理学学士

Degree Granted: Bachelor of Science

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	46	43.5	\	21.5	\	190
选修课 Elective Courses	9	\	15	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

在专业选修课程中，侧重于无线电物理方向的学生建议系统修读电磁兼容原理与应用、射频识别技术与应用、无线通信和微波遥感技术等课程；侧重于通信与信息处理方向的学生建议修读光纤通信原理与技术、图像处理 A、关系数据库与 SQL、无线通信 A、DSP 原理与应用和数字电视传输技术等课程。

When taking specialized courses, students oriented in radio Physics are suggested to choose Principle and Application of EMC Electromagnetic, RFID technology and Application, Wireless Communication A, etc. While

students oriented in communication and information processing are suggested to choose Fiber Communication Theory and Technology, Image Processing A, Principles of Relational Database and SQL, Wireless Communication A, DSP Theory and Application, Digital TV transmission technology, Microwave remote sensing technology, etc.

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
		小 计 Subtotal		35	736		24	64	64			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.								
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050337110	专业导论 Introduction of Specialty	1	16					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A1	
		4080041110	工程图学 B Engineering Graphics B	4	64		4			1		
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050021110	大学物理 A 上 Physics. AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics. AⅡ	3.5	56					3	大学物理 A1	
		4110018110	电路理论 Circuit Principle	4	64	8				2		
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	32	32				3		
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	32	32				4	物理实验 A1	
		4110049110	模拟电子技术基础 B Fundamentals of Analog Electronic Circuit B	3.5	56					3		
		4110051110	模拟电子技术基础实验 Experiments of Analog Electronic Circuit	0.5	16	16				3		
		4050182110	数学物理方法 A Method Of Mathematical Physics A	4.5	72					3		
		4110067110	数字电子技术基础 B Fundamentals of Digital Electronic Circuit B	3.5	56					4		
		4110068110	数字电子技术基础实验 Experiments of Digital Electronic Circuit	0.5	16	16				4		
		小 计 Subtotal		46	784	104	4					

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
专业课程 Specialized Courses	必修课 Required Courses	4050361120	C 语言综合实验 Integrated Experiments of C language	1	32		32			2	计算机程序设计基础(C	
		4050231110	信号与线性系统 Signal and Liner System	4	64	8				4	数学物理方法 A	
		4050167110	数据结构与算法 C Data Structures and Algorithms B	2.5	40		6			4	计算机程序设计基础(C	
		4050030110	电动力学 Electrodynamics	3	48					5		
		4050396120	面向对象程序设计 Object Oriented Programming B	4.5	72		8	16		5	计算机程序设计基础(C	
		4050133110	量子力学 B Quantum Mechanics B	3	48					5	数学物理方法 A	
		4050198110	微处理器与微控制器原理 A Theory of Microcontroller and Microprocessor A	4	64					5	数字电子技术基础 B	
		4050383120	光电技术 Optoelectronic Technology	3.5	56			16		5	数字电子技术基础 B	
		4050083110	光电技术实验 Optoelectronic Technology Experiment	0.5	16	16				5		
		4050195110	微波技术与天线 A Microwave Technology and Antenna A	3	48					6	电动力学	
		4050409120	通信原理 Communication Principles B	4.5	72	8		16		6	信号与线性系统	
		4110071110	数字信号处理 A Digital Signal Processing A	4	64	10				6	信号与线性系统	
		4050411120	微处理器与微控制器应用 Application of Microcontroller and Microprocessor B	3	48			16		6	微处理器与微控制器原理 A	
		4050370120	电子信息技术实验 Experiment on Electronic Information Technology	1	32	32				6	微处理器与微控制器原理 A	
		4050264110	射频识别技术与应用 RFID technology and Application	2	32					7		
		小 计 Subtotal		43.5	736	74	46	64				
	选修课 Elective Courses	4050111110	计算机网络 C Computer Network C	2.5	40					3		
		4050032110	电子线路辅助设计 Computer Aided Design of Electronic Circuit	1	32		32			3		
		4050003110	Matlab 仿真与应用 Matlab Simulation and Application	1	32		32			5		
		4050077110	固体物理 C Solid State Physics C	3	48					5	数学物理方法 A	
		4110031110	高频电子线路 C High-Frequency Electronic Circuits C	3	48	8				5	模拟电子技术基础 B	
		4050078110	关系数据库与 SQL Principles of Relational Database and SQL	2.5	40					6		
		4050008110	半导体物理 Semiconductor Physics	3	48					6	量子力学 B	
		4050367120	FPGA 及数字系统设计 FPGA and Design of Digital System	1	32	32				6	数字电子技术基础 B	

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4050087110	光纤通信原理与技术 Fiber Communication Theory and Technology	2.5	40					6	光电技术	
		4050192110	图像处理 A Image Process A	2.5	40					6	信号与线性系统	
		4050028110	电磁兼容原理与应用 The Principle and Application of EMC	3	48					6	电动力学	
		4050149110	软件工程 C Software Project C	2	32					7	面向对象程序设计 B	
		4050146110	嵌入式系统及其应用 Embedded System and Application	2	32					7	微处理器与微控制器应	
		4050239110	无线通信 Wireless Communication	2.5	40	8				7	通信原理 B	
		4050105110	DSP 原理及应用 DSP Theory and Application	2	32					7	数字信号处理 A	
		4050263110	数字电视传输技术 Digital TV transmission technology	2	32					7	通信原理 B	
		4050265110	微波遥感技术 Microwave remote sensing technology	2	32					7	微波技术与天线 A	
		小 计 Subtotal		37.5	648	48	64					
		修读说明：要求至少选修 15 学分。 NOTE：Minimum subtotal credits: 15.										
个性课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100068110	电工电子实习 A Practice in Electrical Engineering & Electronics	2	2	5	
4050438120	电子综合实训Ⅰ Comprehensive training of electronics Ⅰ	2	2	3	
4050472130	电子综合实训Ⅱ Comprehensive training of electronics Ⅱ	1	1	4	
4050319110	专业调查 Specialty Investigation	2	2	6	
4050276110	毕业实习 Practice for Graduation	2	2	7	
4050429120	毕业设计 Graduation Design	17	11	8	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
小　　计　Subtotal		29	21.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

信息与计算科学专业本科培养方案
Undergraduate Program for Specialty in Information and Computing Science

一、业务培养目标

Ⅰ Educational Objectives

本专业是研究以信息领域为背景的数学基础理论、方法和应用的学科。本专业培养掌握信息科学和计算科学的基本理论和方法和技能，受到科学研究的初步训练，能运用所学数学知识和熟练的计算机技能解决信息处理和科学与工程计算中的实际问题，能在科技、教育、经济和金融等部门从事研究、教学和应用开发或管理工作的高级专门人才。

This program focuses on basic theories, methods and application of mathematics under the background of information technology. Students will study the fundamental theories and method in information and computing science, accept initial training in scientific research and be able to use the knowledge and computer skills to solve real problems. Capable of researching, teaching and application, you will face a glorious career future in science research, education or economic bodies.

二、业务培养要求

Ⅱ Educational Requirement

毕业生应获得以下几方面的知识和能力：

1.具有扎实的数学基础，掌握信息科学或计算科学的基本理论和方法；

2.能熟练使用计算机（包括常用语言、工具以及一些专用软件），具有基本的算法分析、设计能力和较强的编程能力，具有一定的科学研究和软件开发的能力；

3.了解某个应用领域，并能运用所学的理论、方法和技能解决某些科研或生产中的实际课题；

4. 对信息科学与计算科学的理论、技术及应用等方面的新发展有所了解；

5. 掌握一门外语，能顺利阅读本专业的外文资料，掌握文献检索、资料查询的基本方法。

As a student of this course, you are supposed to have:

1.Solid grounding in mathematics, fundamental theories and knowledge in information and computing science;

2.Mastery of common computer language tools and necessary specialized software, skills in algorithm analysis, design and programming，having a practical ability to carry out science research and development soft;

3.Knowledge of the latest development of theories, technologies and application in information and computing science, skills to employ the theories and knowledge in real-world problem solving;

4 Knowledge of the latest development of theories, technologies and application in information and computing science;

5. Mastery of a foreign language and the ability to employ technical resources in foreign text. Mastering the basic ways of inquiring about data, literature searches.

三、主干学科

Ⅲ Major Disciplines & Major Courses

主干学科：信息与计算科学，计算机科学与技术

Major Disciplines: Information and Computing Science, Computer science & Technology

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：数学分析，高等代数，数值分析，概率论与数理统计，微分方程数值解

Core Courses: Mathematical Analysis，Higher Algebra，Space analytic geometry，Ordinary Differential Equations，Numerical Analysis，Probability and Statistics，Numerical Solution of Differential Equations

专业特色课程：数学模型，数据分析，计算机图形学，信息安全技术与密码学、并行计算

Characteristic Courses: Mathematical model，Dada Analysis， Computer graphics，Information safety and Cryptology、Parallel computing.

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：理学学士

Degree Granted: Bachelor of Science

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	43	31.5	\	22.5	\	190
选修课 Elective Courses	9	5	24	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

专业选修课程选修建议：

Suggestion of specialized elective courses:

1. 数据信息计算方向建议选修：运筹学、智能计算、应用随机过程、数据建模基础、数据挖掘原理与算法、实用计算方法与软件、实用回归分析、最优化方法、并行计算

Suggestion of data information computing: Operation Research、Artificial Computation、Applied Stochastic Processes、Data Modeling Foundation、Data mining principles and algorithms、Practical Calculation Method and Software、Applied Regression Analysis 、Optimization Method、Parallel computing

2．图像信息计算方向建议选修：应用随机过程、模式识别、智能计算、计算机图形学、数字图像处理基础、图像应用技术、并行计算、小波分析、泛函分析

Suggestion of mage information science: Applied Stochastic Processes、Pattern Recognition、Artificial Computation、Computer Graphics、Digital Image Processing、Image Application Technology、Parallel computing、Wavelet Analysis、Functional Analysis

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		2-4		
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design (C Language)	3	48		12			2		
		小　计　Subtotal		35	704		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050335110	专业导论 Introduction to Specialty	1	16					1		
		4050175110	数学分析 1 Mathematical Analysis Ⅰ	5	80					1		
		4050176110	数学分析 2 Mathematical Analysis Ⅱ	6	96					2	数学分析 1	
		4050177110	数学分析 3 Mathematical AnalysisⅢ	5	80					3	数学分析 2	
		4050355120	高等代数 1 Higher Algebra Ⅰ	5	80					1		
		4050358120	高等代数 2 Higher Algebra Ⅱ	2.5	40					2		
		4050359120	空间解析几何 Space analytic geometry	2.5	40					2		
		4050019110	常微分方程 Ordinary Differential Equations	3	48					3	数学分析 2	
		4050166110	数据结构与算法 A Data Structure & Algorithms	3.5	56		16			3		
		4050463130	大学物理 B Physics B	5	80					3	数学分析 1	
		4050224110	物理实验 B Physics Lab. B	1	32	32				3	大学物理 B	
		4050406120	实变函数 Functions of A Real Variable	3.5	56					3	数学分析 3	
		小 计 Subtotal		43	704	32	16					
	选修课 Elective Courses	4050180110	数学实验与数学软件 Mathematical experiments & Soft	2.0	32		12			2	数学分析 1	
		4170171110	运筹学 Operation Research	3.0	48					3		
		4010097110	西方经济学 B West Economics B	3.0	48					4		
		小 计 Subtotal		8	128		12					
		修读说明：要求至少选修 5 学分。 NOTE：Minimum subtotal credits: 5.										
专业课程 Specialized Courses	必修课 Required Courses	4050184110	数值分析 A Numerical Analysis A	4	64		8			4		
		4050477130	面向对象程序设计方法 Object-oriented Programming Method	4	64		24			4		
		4050128110	离散数学 Discrete Mathematics	4	64					4		
		4050057110	概率论与数理统计 A Probability and Statistics A	4.5	72					4	数学分析 3	
		4050051110	复变函数与积分变换 A Complex Analysis& Transformation A	4	64					4	数学分析 3	
		4050165110	数据分析 Data Analysis	3	48					5	概率论与数理统计 A	
		4050408120	数学物理方程 Equations of Mathematical Physics	2.5	40					5	数学分析 3	

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4050399120	微分方程数值解 Numerical Solution of Differential Equations	2.5	40					6	常微分方程	
		4050232110	信息安全技术与密码学 Information Safety and Cryptography	3	48		8			6	常微分方程	
		小 计 Subtotal		31.5	504		40					
	选修课 Elective Courses	4050178110	数学模型 A Mathematical Model A	3.5	56		8			4	数学分析 3	
		4050394120	近世代数 Modern Algebra	3	48					5		
		4050244110	应用随机过程 Applied Stochastic Processes	3	48					5		
		4050480130	数据建模基础 Data Modeling Foundation	3	48					5		
		4050258110	智能计算 Artificial Computation	2	32					5	数值分析 A	
		4050140110	模式识别 A Pattern Recognition A	3	48		8			5	概率论与数理统计 A	
		4050262110	最优化方法 Optimization Method	2.5	40		8			5	运筹学	
		4050375120	泛函分析 Functional Analysis	3	48					5		
		4050170110	数据挖掘 B Data mining principles and algorithms	3.5	56		16			6	数据分析	
		4050479130	实用计算方法与软件 Practical Calculation Method and Software	3	48		16			6		
		4050407120	实用回归分析 Applied Regression Analysis	3.0	48		8			6		
		4050368120	并行计算 Parallel computing	4	64		16			6		
		4050487130	数字图像处理基础 Digital Image Processing	3	48		8			6		
		4050474130	计算机图形学 Computer Graphics	3	48		8			6	近世代数	
		4050491130	图像应用技术 Image Application Technology	2	32					7		
		4050127110	控制论基础 The Foundation of Control Theory	2	32					7		
		4050497130	小波分析 Wavelet Analysis	3	48					7		
		4050495130	现代数学方法选讲 Selective modern mathematical methods	3	48					7		
		4050485130	数学文化选讲 Selective mathematics culture	3	48					7		
		小 计 Subtotal		55.5	888		96					
		修读说明：要求至少选修 24 学分。 NOTE：Minimum subtotal credits: 24.										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
个性课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4050321110	专业调查与实践 Understanding of Specialty	2	2	4	
4050441120	建模与数值仿真课程设计 Design of Modeling and Numeric Simulation	2	2	4	
4050445120	数据信息处理课程设计 Course Design for Data Processing	2	2	5	
4050499130	信息计算综合课程设计 Course Design for Information and Computation	2	2	6	
4050275110	毕业实习 Graduation Practice	2	2	7	
4070432120	毕业设计 Graduation Design	17	11	8	
小　　计　Subtotal		30	22.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

统计学专业本科培养方案
Undergraduate Program for Specialty in Statistics

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具有良好的科学素养和扎实的概率论与数理统计基础，掌握统计学的基本理论和方法，具有一定的使用计算机的能力和解决实际的问题的能力。能熟练地运用所学知识与计算机技能采集信息、分析数据、综合处理。并在企业、事业单位和经济、管理部门从事统计调查、统计信息管理、数量分析等开发、应用和管理工作，或在科研、教育部门从事研究和教学工作的高级专门人才。

The program is designed to build a solid background for students in mathematics，probability and statistics. Through studying a variety of courses, the students improve their ability in mathematics, statistics, computer data progressing and analysis, and statistical progressing. The program is aimed to prepare students for careers in business, industry, management science, economy, finance, science research, education, etc.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生主要学习统计学的基本理论和方法，打好数学基础，具有较好的科学素养，受到理论研究、应用技能和使用计算机的基本训练，具有数据处理和统计分析的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 具有扎实的数学基础，受到比较严格的科学思维训练；
2. 掌握统计学的基本理论、基本知识、基本方法和计算机操作技能；具有采集数据、设计调查问卷和处理调查数据的基本能力；
3. 了解社会经济统计、工业统计以及技术工程中的模拟与仿真等有关的自然科学、社会科学、工程技术某一领域的基本知识，具有应用统计学理论分析、解决该领域实际问题的初步能力；
4. 了解统计与概率专业学科的理论与方法的发展动态及其应用前景；
5. 能熟练使用各种统计软件包，有较强的统计计算能力；应具有经济学基础，熟悉国家经济发展的方针、政策和统计法律、法规，具有利用信息资料进行综合分析和管理的能力；
6. 能较熟练掌握一门外国语，顺利地阅读本专业对口的外文书刊；掌握资料查询、文献检索及运用现代信息技术获得相关信息的基本方法；具有一定的科学研究和实际工作能力；
7. 具有较强的英语综合应用能力，特别是听说能力。在今后工作和社会交往中，能用英语进行口头和书面的信息交流，能熟练地进行外文阅读，有一定的科技外语能力。

This program aims to nurture talents in statistics with its theory and methodology. The graduates can use specialized knowledge and statistics software to solve practical problems.

As a student of this course, you are supposed to have:

1. Solid grounding and well training in mathematics;
2. The knowledge in fundamental theories and methods of statistics, and the ability to program and progress data with computer;
3. The basic knowledge related to one of the social statistics, hygienic statistics，biological statistics and industrial statistics;
4. Comprehension of development in theory and applications of probability and statistics;
5. The ability of science research and solving actual problems and the ability of statistical calculation with software package for the Bachelor of Science.
6. Mastery of a foreign language and the ability to employ technical resources documents in foreign language.
7. The ability of communication (oral and written) in science.

三、主干学科

Ⅲ Major Disciplines & Major Courses

主干学科：数学、统计学、经济学

Major Discipline: Mathematics, Statistics, Economics

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：

数学分析、高等代数、概率论、数理统计

Core Courses:

Mathematical Analysis, Higher Algebra, Probability, Mathematical Statistics

专业特色课程：

随机过程、实用回归分析、时间序列分析、多元统计分析、抽样调查、非参数统计、统计预测与决策

Characteristic Courses:

Stochastic Processes, Applied Regression analysis, Time Series Analysis, Multivariate Statistical Analysis, Sampling Survey, Non-parameter Statistics, Statistical Forecasting and Decision

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：理学学士

Degree Granted: Bachelor of Science

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	42	36	\	24.5	\	190
选修课 Elective Courses	9	6.5	17	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

专业选修课程选修建议：

Suggestion of specialized elective courses:

1．经济与金融统计方向建议选修：西方经济学 B、计量经济学、证券投资分析 、数理金融学、国民经济核算原理、风险理论、数据挖掘 A

Suggestion of Economical and Financial Statistics: West Economics B、Econometrics、Security Investment Analysis、Mathematical Finance 、Risk Theory、Data Mining A

2．应用统计方向建议选修：运筹学、数学模型 A、质量管理统计方法、数据挖掘 A、国民经济核算原理、可靠性统计与工程、统计模式识别

Suggestion of Application of Statistics: Operation Research、Mathematical Model A、Statistical Method in Quality Management、Data Mining A、The Principle of National Economic、Reliability statistics and engineering、Statistical Pattern Recognition

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extracur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		2-4		
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design (C Language)	3	48		12			2		
		小　计　Subtotal		35	704		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extracur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050335110	专业导论 Introduction to Specialty	1	16					1		
		4050175110	数学分析 1 Mathematical Analysis Ⅰ	5	80					1		
		4050176110	数学分析 2 Mathematical Analysis Ⅱ	6	96					2	数学分析 1	
		4050177110	数学分析 3 Mathematical AnalysisⅢ	5	80					3	数学分析 2	
		4050355120	高等代数 1 Higher Algebra Ⅰ	5	80					1		
		4050358120	高等代数 2 Higher Algebra Ⅱ	2.5	40					2		
		4050359120	空间解析几何 Space analytic geometry	2.5	40					2		
		4050019110	常微分方程 Ordinary Differential Equations	3	48					3	数学分析 2	
		4050166110	数据结构与算法 A Data Structure & Algorithms	3.5	56		16			3		
		4050463130	大学物理 B PhysicsB	5	80					3	数学分析 1	
		4050224110	物理实验 B Physics Lab. B	1	32	32				3	大学物理 B	
		4050406120	实变函数 Functions of A Real Variable	2.5	40					3	数学分析 3	
		小 计 Subtotal		42	688	32	16					
	选修课 Elective Courses	4050180110	数学实验与数学软件 Mathematical experiments & Soft	2.0	32		12			2	数学分析 1	
		4050254110	运筹学 Operation Research	3.0	48					3		
		4010097110	西方经济学 B West Economics B	3.0	48					4		
		4010056110	计量经济学 Econometrics	3.5	56	8				5		
		4050178110	数学模型 A Mathematical Model A	3.5	56		8			4		
		小 计 Subtotal		15	240	8	20					
		修读说明：要求至少选修 6.5 分。 NOTE：Minimum subtotal credits: 6.5.										
专业课程 Specialized Courses	必修课 Required Courses	4050449130	统计学概论 An introduction to statistics	2.0	32					4		
		4050052110	复变函数与积分变换 B Complex Function and Integral Transform B	3.0	48					4	数学分析 2	
		4050473130	概率论 Probability	4.0	64					4	数学分析 2	
		4050482130	数理统计 Mathematical Statistics	4.0	64					5	概率论	
		4050020110	抽样调查 Sampling Survey	3.0	48					5	数理统计	

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		4050500130	应用随机过程 Applied Stochastic Processes	4.0	64					5	概率论	
		4050372120	多元统计分析 Multivariate Statistical Analysis	3.5	56		8			6	数理统计	
		4050405120	时间序列分析 Time Series Analysis	3.5	56		8			6	数理统计	
		4050407120	实用回归分析 Applied Regression Analysis	3.0	48		8			6	数理统计	
		4050191110	统计预测与决策 Statistical Forecasts and Decisions	3.0	48					7	数理统计	
		4050164110	试验设计与分析 Experimental Design and Analysis	3.0	48					7	数理统计	
		小 计 Subtotal		36	576		24					
	选修课 Elective Courses	4050184110	数值分析 A Numerical Analysis A	4.0	64		8			4	常微分方程	
		4050142110	偏微分方程 Partial Differential Equation	2.0	32					5	常微分方程	
		4050090110	国民经济核算原理 The Principle of National Economic Accounting	3.0	48					5		
		4010214130	证券投资分析 Security Investment Analysis	3.0	48					5		
		4050489130	统计模式识别 Statistical Pattern Recognition	3.0	48		8			5		
		4050173110	数理金融学 Mathematical Finance	3.0	48					6		
		4050169110	数据挖掘 A Data Mining A	3.0	48					6		
		4050257110	质量管理统计方法 Statistical Method in Quality Management	3.0	48					6	概率论	
		4050038110	非参数统计 Nonparametric Statistics	3.0	48					6	数理统计	
		4050009110	贝叶斯统计分析 Bayesian Statistical Analysis	3.0	48					6	数理统计	
		4050476130	可靠性统计与工程 Reliability Statistics and Engineering	3.0	48					6	数理统计	
		4050479130	实用计算方法与软件 Practical Calculation Method and Software	3.0	48		16			7		
		4050377120	风险理论 Risk Theory	3.0	48					7	数理金融学	
		4050497130	小波分析 Wavelet Analysis	3.0	48					7		
		4050496130	现代统计方法选讲 Selective Modern Mathematical Methods	2.0	32					7		
		小 计 Subtotal		44	704		32					
		修读说明：要求至少选修 17 学分。 NOTE：Minimum subtotal credits: 17.										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
个性课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4050502130	专业实习 Practice of Special	2	2	5	
4050446120	统计计算实验 Statistical Computation and Experiments	2	2	6	
4050284110	多元统计分析课程设计 Design of Course	2	2	6	
4050296110	六西格玛、SPC 训练 6σ、SPC Training	1	1	6（暑期）	
4050488130	统计案例分析 Statistical Cases and Analysis	2	2	7	
4050279110	毕业实习 Practice for Graduation	3	3	7	
4050435120	毕业设计 Graduate Thesis	17	11	8	
小 计 Subtotal		32	24.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

工程力学专业本科培养方案
Undergraduate Program for Engineering Mechanics

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具备力学基础理论知识、计算和试验能力，能在各种工程（如机械、土建、材料、能源、交通、航空、船舶、水利、化工等）中从事与力学有关的科研、技术开发、工程设计和力学教学工作的高级工程科学技术人才。

This program aims at training qualified engineering and technical talents who have fundamental theories and knowledge of mechanics, computation and testing, who will be able to engage in scientific research, technical development, engineering design and teaching in fields of mechanical engineering, civil engineering, material engineering, energy engineering, communication engineering, aviation, water conservancy and chemical engineering, etc.

二、业务培养要求

Ⅱ Educational Requirement

本专业主要学习数学、力学基本理论和知识，受到必要的工程技能训练，具有应用计算机和现代实验技术手段解决与力学有关的工程问题的基本能力。

毕业生应获得以下几方面的知识与能力：

1．具有较扎实的自然科学基础，较好的人文、艺术和社会学科基础及正确运用本国语言、文字的表达能力；

2．较系统地掌握本专业领域宽广的技术理论基础知识，主要包括工程力学、流体力学、电工与电子技术等；

3．具有较强的解决与力学有关的工程技术问题的理论分析能力与实验技能；

4．具有较强的计算机和外语应用能力；

5．具有较强的自学能力、创新意识和较高的综合素质。

Students of this program are mainly required to acquire fundamental theories and knowledge of mathematics and mechanics, receive basic trainings on engineering skills, and obtain basic abilities for problem solving by means of computer and modern experimental technology.

The graduates are also required to acquire the knowledge or abilities as follows:

1. Obtaining solid foundation for natural science, humanities, art and social science as well as good ability of expression in the native language;

2. Mastering systematical theories and knowledge, including solid mechanics, fluid mechanics, electrical engineering and electronic technology, market economy, business management and so on;

3. Mastering analytical and experimental skills in engineering mechanics so as to solve practical problems in related fields;

4. Mastering competency for comprehensive application of computer and foreign languages;

5. Acquiring competencies for self-study, innovation awareness and overall quality.

三、主干学科与主要课程

Ⅲ Major Disciplines & Major Courses

主干学科：力学

Major Disciplines: Mechanics

主要课程：理论力学、材料力学、结构力学、弹性力学、流体力学、计算力学、振动力学、实验力

学、有限元分析与应用、混凝土结构设计原理、钢结构力学分析、土力学与基础工程、复合材料力学与结构设计等。

Major Courses: Theoretical Mechanics, Mechanics of Materials, Structural Mechanics, Elastic Mechanics, Fluid Mechanics, Computational Mechanics, Vibration Mechanics, Experimental mechanics, FEM Analysis and Application, Principle of Concrete Structure Design, Mechanical Analysis of Steel Structures, Soil Mechanics and Fundamental Engineering, Mechanics of Composite Materials and Structural Design, etc.

四、特色课程

Ⅳ Characteristic Courses

有限元分析与应用、复合材料力学与结构设计

FEM Analysis and Application, Mechanics of Composite Materials and Structural Design

五、学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration: 4 years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	47.5	39.5	\	29.5	\	190
选修课 Elective Courses	9	\	13.5	6	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

八、理论教学进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur.	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1-4		
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础（C 语言） Fundamentals of Computer Program Design(C)	3	48		12			2		
		小 计 Subtotal		35	736		24	128	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extracur.	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		艺术体育类 Art and Physical Education Courses										
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050259110	专业导论 Introduction to Engineering Mechanics	1	16					1		
		4130066110	工程与建筑制图 Engineering and Architectural Drawing	4	64					1		
		4100011110	电工与电子技术基础 B Fundamentals of Electrical Engineering & Electronic Technology B	5.5	88	20				4		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A 上	
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3	大学物理 A 上	
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	28	28				3	大学物理 A 上	
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	28	28				4	大学物理 A 下	
		4050129110	理论力学 A Theoretical Mechanics A	4.5	72					2		
		4050016110	材料力学 B Mechanics of Materials B	4.5	72					3		
		4050017110	材料力学 B 实验 Experiments of Materials Mechanics B	1	32	32				3		
		4050185110	数值分析 B Numerical Analysis B	2.5	40		8			3		
		小　计 Subtotal		47.5	784	108	8					
专业课程 Specialized Courses	必修课 Required Courses	4050181110	数学物理方法 B Mathematical Physics Methods B	3.5	56					3		
		4050025110	弹性力学 A Mechanics of Elasticity A	4	64					4		
		4050097110	混凝土结构设计原理 B Principle of Concrete Structures Design B	4	64					4		
		4050119110	结构力学 C Structural Mechanics C	4.5	72		10			4		
		4050114110	计算力学 Computational Mechanics	4	64					5		
		4050059110	钢结构力学分析 Mechanical Analysis of Steel Structures	3	48					5		
		4050255110	振动力学 Vibration Mechanics	2.5	40					5		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Opera-tion	实践 Prac-tice	课外 Extra-cur.	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		4050186110	塑性力学 Mechanics of Plasticity	2	32					5		
		4050135110	流体力学 B Fluid Mechanics B	3.5	56	6				6		
		4050162110	实验力学 Experimental Mechanics	2.5	40	8				6		
		4050253110	有限元分析与应用 B FEM Analysis & Application	2.5	40		16			6		
		4050194110	土力学与基础工程 Soil Mechanics and Fundamental Engineering	3.5	56					6		
		小 计 Subtotal		39.5	632	14	26					
	选修课 Elective Courses	4050046110	分析力学 Analysis Mechanics	2	32					3		
		4050350110	工程材料力学性能 Mechanical Properties of Engineering Materials	2	32					4		
		4050069110	工程结构构造与设计 Engineering Structural Construction and Design	4	64			4		4		
		4050116110	结构概念与体系 Structural Concept and System	2	32					4		
		4050006110	板壳力学 Mechanics of Plates and Shells	2	32					5		
		4050120110	结构力学矩阵方法 Matrix Method of Structural Mechanics	2	32		20			5		
		4050060110	高层结构分析 Structural Analysis of High-rise Buildings	2.5	40			8		5		
		4050096110	混凝土结构力学分析 Mechanical Analysis of Concrete Structures	2.5	40			8		5		
		4050034110	断裂力学 Fracture Mechanics	2	32					6		
		4050115110	计算力学程序设计语言 Program Design Language for Computational Mechanics	3.5	56		20			6		
		4050055110	复合材料力学与结构设计 Mechanics of Composite Materials and Structural Design	3.5	56					6		
		4050054110	复合材料工艺基础 Basic Technology of Composite Materials	2	32					6		
		4050070110	工程结构抗震 Engineering Structural Seismic	2.5	40			8		6		
		4050074110	工程岩土学 Soil and Rock Engineering	2	32	6				6		
		4050108110	计算机辅助结构设计 Computer Aided Structural Design	2	32		20			6		
		4050004110	MATLAB 及其结构分析应用 MATLAB and its Structural Analysis	2	32		16			7		
		4050351110	计算流体力学 Computational Fluid Mechanics	2	32					7		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Opera-tion	实践 Prac-tice	课外 Extra-cur.			
		4050098110	机械设计力学基础 Fundamentals of Mechanical Design	3.5	56	6				7		
		4050118110	结构检测技术 B Structural Testing Techniques B	2	32	10				7		
		4050027110	道路设计与施工 Roadway Design and Construction	2	32					7		
		4050147110	桥梁工程结构 Bridge Engineering Structure	2.5	40					7		
		小 计 Subtotal		50.5	818	22	76	28				
		修读说明：要求至少选修 13.5 学分 NOTE: Minimum subtotal credits: 13.5										
个性课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 6 学分。 NOTE：Students can choose any courses from the other specialties. Minimum subtotal credits: 6.										

九、集中性实践教学进程表

Ⅸ Practice Training Table

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	备注
1060002110	军事训练 Military Training	3	1.5	1	
4050299110	认识实习 Practice of Understanding	1	1	3	
4050294110	力学基础强化训练 Strengthening Training on Mechanics Foundation	1	1	3	
4080151110	机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C	2	2	4	
4050470130	混凝土结构设计原理课程设计 Course Design on Concrete Structure Design	1.5	1.5	4	
4100069110	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4	
4050303110	生产实习 Production Practice	2	2	5	
4050471130	钢结构力学分析课程设计 Course Design on Mechanical Analysis of Steel Structures	1.5	1.5	5	
4050472130	计算力学课程设计 Course Design on Computational Mechanics	1.5	1.5	5	
4050473130	有限元分析与应用课程设计 Course Design on FEM Analysis & Application	1	1	6	
4050474130	土力学与基础工程课程设计 Course Design on Soil Mechanics and Fundamental Engineering	0.5	0.5	6	
4050298110	专业实验 Specialized Experiments	1	1	6	
4050274110	毕业实习 Practice for Graduation	2	2	7	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	备注
4050442120	力学综合实验 Comprehensive Experiments on Mechanics (conducted individually)	1	1	7（分散）	
4050434120	毕业设计 Graduation Design (Thesis)	17	11	8	
小　　计　Subtotal		37	29.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

The course of *Situation & Policy*, 16 hours per term with 2 credits, is taught according to specific topics and tested at the end of the 7th term. The course will be arranged by the University's Student Development Instruction Center.

应用数学实验班本科培养方案
Undergraduate Program for Specialty in Applied Mathematics Experimental Class

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具有良好的数学基础和数学思维能力，牢固掌握数学与应用数学的基本理论、方法和技能，具有应用数学知识、使用相关软件解决实际问题的能力，受到科学研究初步训练的专门人才。

毕业生能在科技、教育和经济金融等部门从事研究、教学、或在生产经营及管理部门从事实际应用、开发研究和管理工作。

This program focuses on basic theories, methods and application of mathematics under the background of information technology. Students will study the fundamental theories and method in information and computing science, accept initial training in scientific research and be able to use the knowledge and computer skills to solve real problems. Capable of researching, teaching and application, you will face a glorious career future in science research, education or economic bodies.

二、业务培养要求

Ⅱ Educational Requirement

毕业生应获得以下几方面的知识和能力：

1．具有扎实的数学基础，受到比较严格的科学思维训练，初步掌握数学科学的思想方法；

2．具有应用数学知识去解决实际问题，特别是建立数学模型的初步能力，了解某一应用领域的基本知识；

3．能熟练使用计算机（包括常用语言、工具及一些数学软件），具有编写简单应用程序的能力；

4．有较强的语言表达能力，掌握资料查询、文献检索及运用现代信息技术获取相关信息的基本方法，具有一定的科学研究和教学能力。

As a student of this course, you are supposed to have:

1. With a solid mathematical foundation, subject to more stringent training in scientific thinking, scientific thinking initial grasp mathematical methods;

2. With application of mathematical knowledge to solve practical problems, particularly the establishment of mathematical models of the initial capacity to understand the basics of a particular application areas;

3. Familiar with computer (including the commonly used languages, tools, and some mathematical software), with the ability to write simple applications;

4.Strong language skills, master data query, document retrieval and use of modern information technology to obtain information about the basic approach has certain scientific research and teaching capabilities.

三、主干学科

Ⅲ Major Disciplines & Major Courses

主干学科：数学与应用数学

Major Disciplines: Mathematics and Applied Mathematics

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

专业核心课程：数学分析，高等代数，概率论与数理统计，实变函数，微分几何

Core Courses: Mathematical Analysis，Higher Algebra，Probability and Statistics，Functional Analysis，

Differential Geometry

专业特色课程：数学模型、智能计算、现代数据分析导论及应用、计算机图形学、数学建模在生物医学中的应用、并行计算

Characteristic Courses: Mathematical model，Artificial Computation、Introduction to modern data analysis and its applications、Computer Graphics、Mathematical modeling applications in biomedicine、Computer graphs、Parallel computing.

五、计划学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration： Four Years

授予学位：理学学士

Degree Granted: Bachelor of Science

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	43	37	\	21.5	\	190
选修课 Elective Courses	9	5	19.5	10	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

专业选修课程选修建议：

Suggestion of specialized elective courses:

(1) 数据信息计算方向建议选修：运筹学、智能计算、应用随机过程、数据建模基础、数据挖掘原理与算法、现代数据分析导论及应用、实用计算方法与软件、实用回归分析、并行计算

Suggestion of data information computing: Operation Research、Artificial Computation、Applied Stochastic Processes、Data Modeling Foundation、Data mining principles and algorithms、Introduction to modern data analysis and its applications、Practical Calculation Method and Software、Applied Regression Analysis 、Optimization Method、Parallel computing

（2）图像信息计算方向建议选修：应用随机过程、模式识别、智能计算、计算机图形学、数字图像处理基础、图像应用技术、并行计算、小波分析、偏微分方程数值解

Suggestion of mage information science: Applied Stochastic Processes、Pattern Recognition、Artificial Computation、Computer Graphics、Digital Image Processing、Image Application Technology、Parallel computing、Wavelet Analysis、Functional Analysis、Numerical Solution of Partial Differential

八、理论教学建议进程表

Ⅷ Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extracur	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		2-4		
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design	3	48		12			2		
		小 计 Subtotal		35	704		24	64	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050335110	专业导论 Introduction to Specialty	1	16					1		
		4050175110	数学分析 1 Mathematical Analysis Ⅰ	5	80					1		
		4050176110	数学分析 2 Mathematical Analysis Ⅱ	6	96					2	数学分析 1	
		4050177110	数学分析 3 Mathematical Analysis Ⅲ	5	80					3	数学分析 2	
		4050355120	高等代数 1 Higher Algebra Ⅰ	5	80					1		
		4050358120	高等代数 2 Higher Algebra Ⅱ	2.5	40					2		
		4050359120	空间解析几何 Space analytic geometry	2.5	40					2		
		4050019110	常微分方程 Ordinary Differential Equations	3	48					3	数学分析 2	
		4050166110	数据结构与算法 A Data Structure & Algorithms	3.5	56		16			3		
		4050463130	大学物理 B PhysicsB	5	80					3	数学分析 1	
		4050224110	物理实验 B Physics Lab. B	1	32	32				3	大学物理 B	
		4050465130	实变函数 Functions of A Real Variable	3.5	56					3	数学分析 3	
		小 计 Subtotal		43	704	32	16					
	选修课 Elective Courses	4050180110	数学实验与数学软件 Mathematical experiments & Soft	2	32		12			2	数学分析 1	
		4050254110	运筹学 Operation Research	3	48					3		
		4010097110	西方经济学 B West Economics B	3	48					4		
		小 计 Subtotal		8	128		12					
		修读说明：要求至少选修 5 学分。 NOTE：Minimum subtotal credits: 5.										
专业课程 Specialized Courses	必修课 Required Courses	4050184110	数值分析 A Numerical Analysis A	4	64		8			4		
		4050477130	面向对象程序设计方法 Object-oriented Programming Mmethod	4	64		24			4		
		4050128110	离散数学 Discrete Mathematics	4	64					4		
		4050057110	概率论与数理统计 A Probability and Statistics A	4.5	72					4	数学分析 3	
		4050051110	复变函数与积分变换 A Complex Analysis& Transformation A	4	64					4	数学分析 3	
		4050493130	微分几何 Differential Geometry	3	48					5		
		4050475130	近世代数 Modern Algebra	3	48					5		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur	建议修读学期 Suggested Term		
		4050375120	泛函分析 Functional Analysis	3	48					5		
		4050408120	数学物理方程 Equations of Mathematical Physics	2.5	40					6		
		4050262110	最优化方法 Optimization Method	2.5	40		8			6		
		4050471130	点集拓扑 Point Set Topology	2.5	40					6		
		小 计 Subtotal		37	592		40					
	选修课 Elective Courses	4050178110	数学模型 A Mathematical Model A	3.5	56		8			4	数学分析 3	
		4050165110	数据分析 Data Analysis	3	48					5		
		4050244110	应用随机过程 Applied Stochastic Processes	3	48					5		
		4050480130	数据建模基础 Data Modeling Foundation	3	48					5		
		4050258110	智能计算 Artificial Computation	2	32					5	数值分析 A	
		4050478130	模式识别 Pattern Recognition A	3	48		8			5	概率论与数理统计 A	
		4050368120	并行计算 Parallel Computing	4	64		16			6	数据结构与算法 A	
		4050494130	现代数据分析导论及应用 Introduction to Modern Data Analysis and its Applications	4	64					6	运筹学	
		4050481130	数据挖掘原理与算法 Data Mining Principles and Algorithms	3.5	56		16			6	数据分析	
		4050479130	实用计算方法与软件 Practical Calculation Method and Software	3	48		16			6		
		4050407120	实用回归分析 Applied Regression Analysis	3	48		8			6		
		4050474130	计算机图形学 Computer Graphics	3	48		8			6		
		4050487130	数字图像处理基础 Digital Image Processing	3	48		8			6		
		4050483130	数学建模在生物医学中的应用 Mathematical Modeling Applications in Biomedicine	3	48					6	近世代数	
		4050232110	信息安全技术与密码学 Information Safety and Cryptography	3	48		8			6	常微分方程	
		4050399120	微分方程数值解 Numerical Solution of Differential Equations	2.5	40					6	常微分方程	
		4050127110	控制论基础 The Foundation of Control Theory	2	32					7		
		4050491130	图像应用技术 Image Application Technology	2	32					7		
		4050497130	小波分析 Wavelet Analysis	3	48					7		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extracur	建议修读学期 Suggested Term		
		4050484130	数学史 History of Mathematics	2	32					7		
		小 计 Subtotal		58.5	936		104					
		修读说明：要求至少选修 19.5 学分。 NOTE：Minimum subtotal credits: 19.5.										
个性课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE：Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

九、集中性实践教学环节建议进程表

Ⅸ Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4050321110	专业调查与实践 Understanding of Specialty	2	2	4	
4050441120	建模与数值仿真课程设计 Design of Modeling and Numeric Simulation	2	2	4	
4050498130	信息处理综合课程设计 Course Design for Information Processing	2	2	6	
4050307110	数学前沿讲座 Lecture of Mathematics Frontier	1	1	7	
4050275110	毕业实习 Graduation Practice	2	2	7	
4070432120	毕业设计 Graduation Design	17	11	8	
小 计 Subtotal		29	21.5		

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

工程力学专业（卓越工程师班）本科培养方案
Undergraduate Program for Specialty in Engineering Mechanics (Excellent Engineer Class)

一、业务培养目标

Ⅰ Educational Objectives

本专业培养具有坚实的工程力学专业基础知识，较强的有限元分析和力学测试能力，良好的工程素质和工程实践能力的应用创新型工程技术人才，可从事车辆工程领域产品以及新技术研发过程中的分析和实验等方面的工作。

This program aims at training qualified, application-oriented, and innovation-oriented engineering and technical talents with solid specialty knowledge of engineering mechanics, strong capability of finite element analysis and mechanical testing, good engineering qualities and practice abilities, who will be able to engage in analysis and testing in the process of research and development of new products and techniques in vehicle engineering.

二、业务培养要求

Ⅱ Educational Requirement

本专业学生主要学习数学、力学基本理论和知识，受到必要的工程技能训练，具有应用计算机和现代实验技术手段解决与车辆工程有关的力学问题的基本能力。

毕业生应获得以下几方面的知识与能力：

1．具有较扎实的自然科学基础，较好的人文、艺术和社会学科基础及正确运用本国语言、文字的表达能力；

2．较系统地掌握本专业领域宽广的技术理论基础知识，主要包括工程力学、流体力学、电工与电子技术等；

3．具有较强的解决车辆工程领域力学技术问题的有限元分析能力与实验技能；

4．具有较强的计算机和外语应用能力；

5．具有较强的自学能力、创新意识和较高的综合素质。

Students of this program are mainly required to acquire fundamental theories and knowledge of mathematics and mechanics, receive basic trainings on engineering skills, and obtain basic abilities for solving mechanics problems in vehicle engineering field by means of computer and modern experimental technology.

The graduates are also required to acquire the knowledge or abilities as follows:

1. Obtaining solid foundation for natural science, humanities, art and social science as well as good ability of expression in the native language;

2. Mastering systematical theories and knowledge, including solid mechanics, fluid mechanics, electrical engineering and electronic technology, market economy, business management and so on;

3. Mastering strong FEM analysis and experimental testing skills so as to solve engineering mechanics problems in vehicle engineering field;

4. Mastering competency for comprehensive application of computer and foreign languages;

5. Acquiring competencies for self-study, innovation awareness and overall quality.

三、主干学科与主要课程

Ⅲ Major Disciplines & Major Courses

主干学科：力学

Major Disciplines: Mechanics

主要课程：理论力学、材料力学、弹性力学、结构力学、流体力学、计算力学、振动力学、实验力学、有限元分析与应用、工程材料力学性能、汽车理论、汽车构造等

Major Courses: Theoretical Mechanics, Mechanics of Materials, Elastic Mechanics, Structural Mechanics, Fluid Mechanics, Computational Mechanics, Vibration Mechanics, Experimental Mechanics, FEM Analysis and Application, Mechanical Properties of Engineering Materials, Theory of Automobile, Automobile Structure, etc.

四、专业核心课程与专业特色课程

Ⅳ Core Courses and Characteristic Courses

有限元分析与应用、复合材料力学与结构设计

FEM Analysis and Application, Mechanics of Composite Materials and Composite Structure Design

五、学制与学位

Ⅴ Length of School and Degree

修业年限：四年

Duration: 4 years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineer

六、最低毕业学分规定

Ⅵ Graduation Credit Criteria

课程类别 Course Classification / 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Courses in General Discipline	专业课程 Courses in Specialty	个性课程 Personalized Course	集中性实践 Practice Courses	课外学 Extracurricular Credits	总学分 Total Credits
必修课 Required Courses	35	46.5	42	\	33.5	\	190
选修课 Elective Courses	9	\	14	\	\	10	

七、课程修读指导建议

Ⅶ Recommendations on Course Studies

八、理论教学进程表

Ⅷ Theory Course Schedule

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Opera-tion	实践 Prac-tice	课外 Extra-cur.	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1-4		
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4210001110	体育 1 Physical Education Ⅰ	1	32					1		
		4210002110	体育 2 Physical Education Ⅱ	1	32					2	体育 1	
		4210003110	体育 3 Physical Education Ⅲ	1	32					3	体育 2	
		4210004110	体育 4 Physical Education Ⅳ	1	32					4	体育 3	
		4030002110	大学英语 A1 College English A 1	3	64				16	1		
		4030003110	大学英语 A2 College English A Ⅱ	3	64				16	2	大学英语 A1	
		4030004110	大学英语 A3 College English A Ⅲ	3	64				16	3	大学英语 A2	
		4030005110	大学英语 A4 College English A Ⅳ	3	64				16	4	大学英语 A3	
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1		
		4120023110	计算机程序设计基础（C 语言） Fundamentals of Computer Program Design (C Language)	3	48		12			2		
		小 计 Subtotal		35	736		24	128	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses	全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Opera-tion	实践 Prac-tice	课外 Extra-cur.	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		艺术体育类 Art and Physical Education Courses										
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4050259110	专业导论 Introduction to Engineering Mechanics	1	16					1		
		4080041110	工程图学 B Engineering Graphics B	4	64					1		
		4050063110	高等数学 A 上 Advanced Mathematics AⅠ	5	80					1		
		4050064110	高等数学 A 下 Advanced Mathematics AⅡ	5	80					2	高等数学 A 上	
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4050129110	理论力学 A Theoretical Mechanics A	4.5	72					2		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050021110	大学物理 A 上 Physics AⅠ	3.5	56					2		
		4050022110	大学物理 A 下 Physics AⅡ	3.5	56					3	大学物理 A 上	
		4050222110	物理实验 A 上 Physics Lab. AⅠ	1	28	28				3	大学物理 A 上	
		4050223110	物理实验 A 下 Physics Lab. AⅡ	1	28	28				4	大学物理 A 下	
		4050016110	材料力学 B Mechanics of Materials B	4.5	72					3		
		4050017110	材料力学 B 实验 Experiments of Materials Mechanics B	1	32	32				3		
		4050185110	数值分析 B Numerical Analysis B	2.5	40		8			3		
		4100011110	电工与电子技术基础 B Fundamentals of Electrical Engineering & Electronic Technology B	5.5	88	20				4		
		小 计 Subtotal		46.5	784	108	8					
专业课程 Specialized Courses	必修课 Required Courses	4050181110	数学物理方法 B Mathematical Physics Methods B	3.5	56					3		
		4050025110	弹性力学 A Mechanics of Elasticity A	4	64					4		
		4050119110	结构力学 C Structural Mechanics C	4.5	72		10			4		
		4050098110	机械设计力学基础 Fundamentals of Mechanical Design	3.5	56	6				4		
		4050186110	塑性力学 Mechanics of Plasticity	2	32					5		
		4050114110	计算力学 Computational Mechanics	4	64					5		
		4050255110	振动力学 Vibration Mechanics	2.5	40					5		

课程类别 Course Classifi-cation	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including 总学时 Tot hrs.	实验 Exp.	上机 Opera-tion	实践 Prac-tice	课外 Extra-cur.	建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
		4080067110	机械制造技术基础 D Fundamentals of Mechanical Manufacturing Technology D	2.5	40	4				5		
		4090037110	汽车构造 A Automobile Structure A	4	64			4		5		
		4050135110	流体力学 B Fluid Mechanics B	3.5	56	6				6		
		4050162110	实验力学 Experimental Mechanics	2.5	40	8				6		
		4050349110	有限元分析与应用 A FEM Analysis & Application A	3.5	56		24			6		
		4090043110	汽车理论 B Theory of Automobile B	2	32					6		
		小 计 Subtotal		42	672	24	34					
	选修课 Elective Courses	4050046110	分析力学 Analytical Mechanics	2	32					3		
		4050350110	工程材料力学性能 Mechanical Properties of Engineering Materials	2	32					5		
		4050004110	MATLAB 及其结构分析应用 MATLAB and Application in Structural Analysis	2	32		16			7		
		4050363110	汽车 CAD-CATIA 软件应用/ Automobile CAD- application of CATIA software	2	32		10			5		
		4050006110	板壳力学 Mechanics of Plates and Shells	2	32					5		
		4050055110	复合材料力学与结构设计 Mechanics of Composite Materials and Composite Structure Design	3.5	56					6		
		4050054110	复合材料工艺基础 Basic Technology of Composite Materials	2	32					6		
		4050034110	断裂力学 Fracture Mechanics	2	32					6		
		4050115110	计算力学程序设计语言 Program Design Language for Computational Mechanics	3.5	56		20			6		
		4090056110	汽车优化设计 Automobile Optimal Design	2	32		12			7		
		4090041110	汽车可靠性 Reliability of Automobile	2	32					7		
		4090049110	汽车试验学 Automobile Test	3	48					7		
		4050351110	计算流体力学 Computational Fluid Mechanics	2	32		12			7		
		小 计 Subtotal		30	480		58					
		修读说明：要求至少选修 14 学分 NOTE: Minimum subtotal credits: 14										

九、集中性实践教学进程表

Ⅸ Practice Training Table

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term
1060002110	军事训练 Military Training	3	1.5	1
4050294110	力学基础强化训练 Strengthening Training on Mechanics Foundation	2	2	3
4080151110	机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C	2	2	4
4100069110	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4
4050353110	生产工艺实习 Production Craft Internship	1	1	5
4050289110	计算力学课程设计 Course Design on Computational Mechanics	2	2	5
4050318110	有限元分析与应用课程设计 Course Design on FEM Analysis & Application	2	2	6
4050354110	岗位实习 Job Internship	7	7	6
4050501130	专业实验 Specialized Experiments	2	2	6
4050295110	力学综合实验 Comprehensive Experiments on Mechanics (conducted individually)	2	2	7（分散）
4050434120	毕业设计 Graduation Design (Thesis)	17	11	8
小　　计　Subtotal		41	33.5	

十、其它要求

Ⅹ Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

The course of *Situation & Policy*, 16 hours per term with 2 credits, is taught according to specific topics and tested at the end of the 7th term. The course will be arranged by the University's Student Development Instruction Center.