

## 热能与动力工程专业本科培养方案

### Undergraduate Program for Specialty in Thermal Energy and Power Engineering

#### 一、修业年限及授予学位名称

##### I、Length of Schooling and Degree

四年；工学学士

#### 二、培养目标

##### II、Educational Objectives

本专业培养基础扎实、知识面宽、能力较强、素质优良、富于理想与追求、勇于求实和创新、具有一定国际视野的能源转换与利用和热力环境保护领域的德、智、体、美全面发展的高层次、高素质工程技术和管理人员，以满足社会对该能源动力学科领域的科研、设计、教学、工程技术、经营管理等各方面的人才需求。

The specialty training firm and wide knowledge, ability, quality, and the pursuit of ideals, the courage to truth-seeking and innovation, the international competitiveness of a certain energy and power engineering aspects of moral, intellectual, physical, and aesthetic development of the high-level, high-quality engineering and management personnel. So as to meet talent needs for scientific research, design, teaching, engineering, and management in areas of power engineering.

#### 三、培养规格及要求

##### III、Skills Profile and Minimum Credits

学生应具备宽广的自然科学、人文和社会科学知识，热学、力学、电学、机械、自动控制、系统工程等宽厚理论基础、热能动力工程专业知识和实践能力，掌握计算机应用与自动控制技术方面的知识。毕业生能从事能源与动力工程及相关方面的研究、教学、开发、制造、安装、检修、策划、管理和营销等工作。也可在本专业或其它相关专业继续深造，攻读硕士、博士学位。

Students should have a broad natural sciences, humanities and social science knowledge, thermal, mechanical, electrical, machinery, automatic control, systems engineering, such as the theoretical basis generous, thermal power engineering expertise and practical ability to master computer applications and automation technology knowledge. Graduates can engage in energy and power engineering and related research, teaching, development, manufacture, installation, maintenance, planning, management and marketing and so on. It is also available on the professional or other relevant professional continuing education, Master, PhD.

#### 四、主干学科和主要课程

##### IV、Core Disciplines and Courses

主干学科：动力工程及工程热物理

Core Disciplines: Power Engineering & Engineering Thermophysics

主干课程：工程热力学、工程流体力学、传热学、燃烧学、热工过程自控原理及系统、动力工程计算方法、锅炉原理、汽轮机原理、制冷与低温原理、机械设计基础、可持续发展与环境保护。

Core Courses: Engineering Thermodynamics, Engineering Fluid Mechanics, Heat Transfer, Science of Combustion, Automatic Control Theory of Thermal Engineering, Numerical Method, Principles of Boiler, Principles of Turbine, Principles of Refrigeration & Cryogenics, Sustainable development and environmental protection, Basics of Mechanical Designing.

### 五、使用外语和双语教学的课程

全英文教学课程：传热学，工程流体力学，燃烧学。

双语教学课程：工程热力学，能源工程概论。

### V、Full English Courses & Bilingual Courses

Full English Courses: Heat Transfer, Engineering Fluid Mechanics, Combustion.

**Bilingual Courses:** Engineering Thermodynamics, Outline of Energy Engineering.

### 六、课程体系的构成及学分、学时分配和最低毕业学分

#### VI、Hours/Credits of Course system and Minimum Graduate Credits

课程类别		学时/周数	学分	学时比例%
必修	通识教育基础	992	62	
	学科大类基础	440	27	
	专业主干	344	21.5	
	集中实践环节	36 周	26	
选修	文化素质	192	6	
	通识教育基础	152	9.5	
	学科大类基础	32	2	
	专业选修	96	6	
	专业方向/模块课	128	8	
最低毕业学分		168 <sup>+10</sup>		

Type of Course		Hours/Weeks	Credits	Percentage (%)
Required Courses	Basic Course in General Education	992	62	
	Basic Course in General Discipline	440	27	
	Major Courses in Specialty	344	21.5	
	Internship and Practical Training	36 weeks	26	
Elective Courses	Culture Elective Courses	192	6	
	Basic Course in General Education	152	9.5	
	Basic Course in General Discipline	32	2	
	Selective Courses in Specialty	96	6	
	Specialty-Oriented/Module Course	128	8	
Minimum Graduate Credits		168 <sup>+10</sup>		

## 七、集中实践环节及要求

### VII、Practical Training and Requirement

金工实习：了解机械加工的基本过程和方法，掌握基本工艺操作及技能。

**Metalworking Practice:** Understanding the basic processes and methods of machining, mastering the basic process operation and skills.

生产实习：了解和熟悉火电厂热力系统和自动化控制系统，了解和熟悉各类耗能企业的用能、节能和环保情况，了解和熟悉制冷空调设备系统，了解热力设备的基本结构及其正常运行、启动、停机及事故处理实际知识。

**Produces Practice:** Understand and are familiar with the thermal power plant control systems and automation systems, understanding and familiar with the various types of energy-consuming enterprises, energy, energy saving and environmental situation, understanding and familiar with the cooling air-conditioning systems, to understand the basic structure of the thermal equipment and its normal operation, start, downtime and practical knowledge to deal with the accident.

课程设计：1) 机械设计：掌握机械设计的基本理论、设计步骤和方法，培养机械设计能力，为热力设备及系统的设计奠定基础。2) 锅炉原理课程设计、汽轮机原理课程设计、制冷与低温原理课程设计、热工自动控制原理及系统课程设计，掌握主要热力设备及系统及其自动控制系统设计的基本方法。

**Curricula Design:** 1. Mechanical Designing, Mastering the basic theory, design steps and method of mechanical design, training the ability of mechanical design, laying the foundation for the design of the thermal equipments and systems. 2. Specialty Curricula Design, Mastering the basic method for design of thermal equipments and systems.

专业自主创新实验：安排在第六和第七学期（分散安排，学生可以预约实验时间），目的是通过这一实验环节，综合所学专业基础知识，设计和布置实验，启发创新思维，培养创造能力。

**Innovation Experiment:** Arrangements in the sixth and seventh semester, the aim is to link through this experiment, integrated what they have learned the basis of professional knowledge, design and layout of experiments, inspired by creative thinking, develop creativity.

毕业设计（论文）：综合应用所学专业基础理论和知识，以工程设计、科技开发、实验研究为课题，完成全面的综合性工程基本训练。

**Graduation Project (Paper):** Integrated application of Basic theory and knowledge of Specialty, to engineering design, scientific and technological development, experimental research subjects, performing a complete basic training project.

## 八、教学进程及说明

## VIII、Teaching Schedule

学 年	学 期	教学进程																				理 论 教 学 →	实 习 √	课 程 设 计 ○	毕 业 设 计 /	考 试 :	入 学 军 训 ※	就 业 教 育 △	合 计
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
一	1	※	※	※	※	→	→	→	→	→	→	→	→	→	→	→	→	→	→	:	:	14				2	4		20
	2	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	:	:		17				2			<u>19</u>
二	3	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	:	:		17				2			19
	4	√	√	√	→	→	→	→	→	→	→	→	→	→	→	→	→	→	:	:		15	3			2			20
三	5	√	√	√	→	→	→	→	→	→	→	→	→	→	→	→	→	○	○	:	<u>:</u>	13	3	<u>2</u>		2			<u>20</u>
	6	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	:	:	○	○	16		<u>2</u>		2			<u>20</u>
四	7	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	:	○	○		16		<u>2</u>		1			<u>19</u>
	8	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	△	△				18			2	20
合 计																						108	<u>6</u>	<u>6</u>	18	13	4	2	<u>157</u>

## 九、教学安排指导表

## IX、Table of Teaching Arrangement

## (一) 必修课 Required Courses

课程类别 Type of Course	专业方向 Specialty	课程编号 Course Code	课程名称 Course Name	总学分 Credits	总学时 Hours	课内学时 Hours			课外实践 Practice	开课学期 Semester
						理论课 Theory	实验课 Experiment	上机 Operating		
Basic Courses in General Education 通识教育基础课程			“形势与政策”教育 Studies of Current Social Situations	2	32	32				1-8
		01000220	思想道德修养与法律基础 Ethics and Principles of Law	2	32	32				1
		25000110	体育(1) Physical Education (1)	1	16		32			1
		67001420	军事课(含军事训练、军事理论) Military Course (Including Training and Theories)	2	32	32				1
		04033330	大学英语(1) College English (1)	3	48	40	16			1
		18012625	大学计算机基础 Fundamentals of Computer	2.5	40	24		32		1
		10019745	高等数学(II-1) Higher Mathematics (II-1)	4.5	72	72				1
			新生研讨课 Freshman Seminar	1.0	16	16				1
		01000920	中国近现代史纲要 Outline of Modern Chinese History	2	32	32				2
		25000710	体育(2) Physical Education (2)	1	16		32			2
		04033430	大学英语(2) College English (2)	3	48	40	16			2
		18012735	C 程序设计技术 C Programming Technology	3.5	56	40		32	16	2
		10019565	高等数学(II-2) Higher Mathematics (II-2)	6.5	104	104				2
		10019035	大学物理(II-1) College Physics (II-1)	3.5	56	56				2
		10020815	大学物理实验 College Physical Experiment	1.5	24		48			2
		01021230	毛泽东思想和中国特色社会主义理论体系概论 Overview of Theoretical System of Maoism and Chinese Characteristics Socialism	3	48	48				3
		25000810	体育(3) Physical Education (3)	1	16		32			3
		04033530	大学英语(3) College English (3)	3	48	40	16			3
		10025520	线性代数(II) Linear Algebra (II)	2	32	32				3
		10002040	大学物理(II-2) College Physics (II-2)	4	64	64				3
		01001030	马克思主义基本原理 Marxism Philosophy	3	48	48				4
		25000910	体育(4) Physical Education (4)	1	16		32			4

课程类别 Type of Course	专业方向 Specialty	课程编号 Course Code	课程名称 Course Name	总学分 Credits	总学时 Hours	课内学时 Hours			课外实践 Practice	开课学期 Semester
						理论课 Theory	实验课 Experiment	上机 Operating		
		04033630	大学英语(4) College English (4)	3	48	40	16			4
		10029830	概率论与数理统计(I) Probability & Mathematical Statistics(I)	3	48	48				4
	通识教育基础课程小计 Sub-total of Basic Courses in General Education			62	992					

Basic Courses in General Discipline 学科大类基础课程	11025235	工程制图(II) Graphing of Engineering (II)	3.5	56	56					2
	15011235	电工电子学(I-1) Electronics in Electrical Engineering (I-1)	3.5	56	56					3
	24013020	理论力学(III) Theoretical Mechanics (III)	2	32	30	4				3
	14008940	工程热力学 Engineering Thermodynamics	3.5	60	60					3
		热工实验(I)	0.5	8		8				3
	15011320	电工电子学(I-2) Electronics in Electrical Engineering (I-2)	2	32	32					4
	15011410	电工电子学实验 Experiment of Electronics in Electrical Engineering	1	16		32				4
	14009040	工程流体力学 Engineering Fluid Mechanics	4	64	62	4				4
	11001030	机械设计基础(II) Basics of Mechanical Designing (II)	3	48	44	8				5
		传热学(I) Heat Transfer (I)	2	32	32					5
		传热学(II) Heat Transfer (II)	1.5	28	28					5
		热工实验(II)	0.5	8		8				5
学科大类基础课程小计 Sub-total of Basic Courses in General Discipline			27	440						

Major Courses in Specialty 专业主干课程	14004110	能源与动力工程导论 An Introduction to Thermal & Power Engineering	1	16	16					1
	14001230	汽轮机原理 Principles of Steam Turbine	3	48	44	8				5
	14009240	制冷及低温原理 Principles of Refrigeration & Cryogenics	3.5	56	52	8				5
	14001520	燃烧学 Combustion	2.5	40	38	4				5
		热工量测及分析 Testing Technology of Thermal Engineering	2.5	40	36	8				6
		热工过程自控原理及系统 Principles of Thermal Process Automatic Control	4	64	62	4				6
	14001430	锅炉原理 Principles of Boiler	3	48	46	4				6

		能源与动力工程研讨课	2	32					7
		专业主干课程小计 Sub-total of Major Courses in Specialty	21.5	344					
		必修课程学分合计 Total of Required Courses	110.5						

## (二) 选修课 Elective Courses

课程类别 Type of Course	专业方向 Specialty	课程编号 Course Code	课程名称 Course Name	总学分 Credits	总学时 Hours	课内学时 Hours			课外实践 Practice	开课学期 Semester
						理论课 Theory	实验课 Experiment	上机 Operating		
文化素质			文化素质教育选修课 Culture Elective Courses	6	192	192				
Basic Elective Courses in General Education 通识教育基础选修		22000220	大学化学(II) College Chemistry (II)	2	32	32				1
		22000105	大学化学实验 College Chemistry Experiment	0.5	8		16			1
		17010130	计算机硬件技术基础(II) Basic Principle of Computer Hardware Technology(II)	3	48	32	32		16	6
		85000215	文献检索与利用(II) Sci-Tech Literature Searching and Utilization	1.5	24	20		8		7
		18007225	计算机信息管理基础 Computer-based Information Management	2.5	40	32		16	16	4
		10020930	复变函数与积分变换 Complex Variables & Integral Transformations	3	48	48				3
		通识教育基础选修课程小计 Subtotal of Basic Elective Courses in General Education		12.5	200					
		通识教育基础选修课程对学生的最低学分要求为 Minimum Credits of Basic Elective Courses in General Education		9.5						

Basic Elective Courses in General Discipline 学科大类基础选修		24015020	材料力学(III) Mechanics of Materials (III)	2	32	30	4			4
		20017020	结构力学(IV) Structural Mechanics(IV)	2	32	32				5
		22024525	物理化学 II Physical Chemistry II	2.5	40	32	16			3/4
		学科大类基础选修课程小计 Subtotal of Basic Elective Courses in General Discipline		6.5	104					
		学科大类基础选修课程对学生的最低学分要求为 Minimum Credits of Basic Elective Courses in General Discipline		2						

选修课			动力工程计算方法 Computational Methods	2	32	24		16		4
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		14000520	可持续发展与环境保护 Sustainable Development & Environmental Protection	2	32	32				6
		14001620	能源工程材料 Material for Power Energy Engineering	2	32	24	16			4
		14000620	能源工程概论（双语） Advanced of Thermal and Power Engineering	2	32	32				7
			化学反应工程 Chemical Reaction Engineering	2	32					6
		专业选修课程小计 Subtotal of Selective Courses in Specialty		10	160					
		专业选修课程对学生的最低学分要求为 Minimum Credits of Selective Courses in Specialty		6						

Selective Courses in Specialty 专业选修	流体机械与制冷低温工程方向模块	14004520	制冷压缩机 Refrigeration Compressor	2	32	30	4			6
		14002220	泵与风机 Pumps & Fans	2	32	30	4			5
		14007520	换热器 Heat Exchanger	2	32	30	4			7
		14000920	工程传质 Engineering Mass Transfer	2	32	32				6
		14004230	暖通空调系统 Heating Ventilation Air-condition System	3	48	44	8			7
		17002920	空气调节（双语） Air Conditioning System	2	32	32				6
			低温技术及其应用 Cryogenic technology and its applications	2	32	32				7
		流体机械与制冷及低温工程方向/模块课程小计 Subtotal of Selective Courses in Specialty –Oriented Module2		15	240					

	热能动力与控制工程方向模块	14001520	洁净煤燃烧技术 Combustion Technology	2	32	30	4			6
		14002720	发电厂电气设备 Electric Equipments of Power Plant	2	32	32				6
		14002020	热电冷联产 Combined Cooling Heating and Power	2	32	32				7
		14003220	热力发电厂 Thermal Power Plant	2	32	30	4			7
			电厂热力设备与系统 Equipment & System of Heating Engineering	2	32	30	4			6
			电站集控运行与计算机控制 DCS Operation & Computer Control of Power Station	2.5	40	38	4			7
			热力系统仿真与优化 Technology of Thermal System Simulation & Optimization	2	32	24		16		7
		14002520	热工智能仪表 Thermal Intelligent Instrument	2	32					7



		能源战略与能源经济 Energy Stratagem & Energy Economics	2	32	32				7
		内燃机基础 Foundation of Internal Combustion Engine	2	32	32				6
	热能动力与控制工程方向/模块课程小计 Subtotal of Selective Courses in Specialty –Oriented Module2		20.5	328					

	核能与 新能源 方向 模块	14007320 辐射测量与防护 Radiation Monitoring and Protection	2	32	30	4			6
		14007640 核反应堆热工分析 Thermal Hydraulic Analysis of Nuclear Reactor	4	64	60	8			6
		14007720 核反应堆安全学 Nuclear Reactor Safety	2	32	30	4			7
		14007930 核电厂系统及运行 Nuclear Power Plant Systems and Equipment	3	48	46	4			7
		可再生能源及其利用技术 Renewable Energy & Its Application	2	32	32				7
		太阳能光热转换与发电 Solar Energy Conversion & Power Generation	2	32	32				7
		生物质利用原理与技术 Principles and techniques of biomass use	2	32	32				7
	核能与新能源方向模块课程小计		17	272					

	专 业 前 沿 模 块	计算流体力学与计算传热学基础 The Basis of CFD & CHT	2	32	16		32		6
		传热传质理论及生物质能利用前沿 Theory of Heat and mass transfer and the usage of biomass energy	2	32	32				7
		清洁高效燃烧与节能减排前沿 Clean and efficient combustion and energy saving	2	32	32				7
		非平衡热力学及工程应用前沿 Non-equilibrium thermodynamics and engineering applications	2	32	32				7
		能源动力系统过程仿真与优化前沿 Energy power systems simulation and control	2	32	32				7
		反应堆工程与核安全前沿 Reactor Engineering and Nuclear Safety	2	32	32				7
	专业前沿课程/模块课程小计 Subtotal of Selective Courses in Specialty –Oriented Module2		12	192					
	学生按专业方向/模块课程选修的最低学分要求为 Minimum Credits of Selective Courses in Specialty-Oriented Module		8	128					
	选修课程的最低学分要求合计 Total of Minimum Credits for Selective Courses		29.5						

### (三) 集中实践环节 Practical Training

课程 类别 Type of Course	专业 方向 Specialty	课程 编号 Course Code	课程名称 Course Name	总学分 Credits	总周数 Weeks	课外 实践 Practice	开课 学期 Semester
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课程类别 Type of Course	专业方向 Specialty	课程编号 Course Code	课程名称 Course Name	总学分 Credits	总周数 Weeks	课外实践 Practice	开课学期 Semester
Required Courses 必修		01000110	思想道德修养与法律基础实践 Ethics and Rudiments of Law	1	1	1	1
		01021330	毛泽东思想和中国特色社会主义理论体系概论实践 Overview of Theoretical System of Maoism and Chinese Characteristics Socialism	3	3	3	3
		74000530	金工实习(III) Metalworking Practice	3	3		4
		14003630	专业实习 specialty practice	3	3		5
		11015120	机械设计基础课程设计 Course Project of Mechanical Designing	2	2	2	5
		14003920	专业创新实验 Innovative Experiment	2	2		7
		14009610	毕业设计 Graduation Project	6	18		8
			必修课程小计 Subtotal of Required Courses		20	32	
Selective Courses 选修			《制冷及低温原理》课程设计 Course Project of Principles of Refrigeration & Cryogenics	2	2		6
			《汽轮机原理》课程设计 Course Project of Principles of Steam Turbine	2	2		6
			《锅炉原理》课程设计 Course Project of Principles of Boiler	2	2		7
			《热工过程自控原理及系统》课程设计 Course Project of Thermal Process Automatic Control	2	2		7
			SRT、科技竞赛、自主工程实践(任选) SRT, S&T Competition, self-Engineering Practice	2	2		6-8
			选修课程小计 Subtotal of Selective Courses		10	10	
实践环节学分要求合计 Total of Minimum Credits for Practical Training				26	36		

培养方案制订人：学院培养计划制定小组

培养方案审核人：

培养方案批准人：

## 热能与动力工程专业辅修、第二专业培养计划

### Undergraduate Program for Minor/Second Specialty in Thermal Energy and Power Engineering

#### 一、专业名称

##### I、Specialty

热能动力工程

#### 二、培养目标

##### II、Educational Objectives

培养德智体全面发展，掌握现代能源科学、信息科学和管理科学技术，在热能与动力工程领域从事设计、运行、自动控制、环境保护、清洁能源利用和新能源开发等工作的基础扎实、知识面广、创新能力强的复合型人才。

#### 三、培养规格及学分要求

##### III、Skills Profile and Minimum Credits

学生应掌握热能与动力工程基础理论，掌握工程制图、计算机应用、自动控制、能源利用、环境保护等方面的基本知识和技术，具备热力系统（包括制冷空调系统）及设备的软硬件研究、开发、设计、运行和技术管理的能力，具有适应社会需要的良好素质和创新精神，有较强的外语应用水平与能力。

主干学科：动力工程及工程热物理

主干课程：工程热力学、工程流体力学、传热学、热工过程自控原理及系统、电厂热力设备与系统、制冷及低温原理、可持续发展与环境保护等。

辅修要求修满 **25** 学分。

**25 Credits are required for Minor.**

第二专业要求修满 **65** 学分。

**65 Credits are required for Second Specialty.**

#### 四、教学安排指导表

##### IV、Table of Teaching Arrangement

# 五、课程设置

## V、Curriculum

课程类别 Type of Course	专业方向 Specialty	课程编号 Course Code	课程名称 Course Name	总学分 Credits	总学时 Hours	课内学时 Hours			课外实践 Practice	开课学期 Semester
						理论课 Theory	实验课 Experiment	上机 Operating		
理论课 Theoretical Courses			<u>工程热力学</u> <u>Engineering Thermodynamics</u>	<u>3.5</u>	<u>60</u>	<u>60</u>		—	—	<u>3</u>
			<u>工程流体力学</u> <u>Engineering Fluid Mechanics</u>	<u>4</u>	<u>64</u>	<u>62</u>	<u>4</u>	—	—	<u>4</u>
			<u>传热学（I）</u> <u>Heat Transfer（I）</u>	<u>2</u>	<u>32</u>	<u>32</u>		—	—	<u>5</u>
			<u>传热学（II）</u> <u>Heat Transfer（II）</u>	<u>1.5</u>	<u>28</u>	<u>28</u>		—	—	<u>5</u>
			<u>锅炉原理</u> <u>Principles of Boiler</u>	<u>3</u>	<u>48</u>	<u>46</u>	<u>4</u>	—	—	<u>6</u>
			<u>汽轮机原理</u> <u>Principles of Steam Turbine</u>	<u>3</u>	<u>48</u>	<u>44</u>	<u>8</u>	—	—	<u>5</u>
			<u>制冷及低温原理</u> <u>Principles of Refrigeration &amp; Cryogenics</u>	<u>3.5</u>	<u>56</u>	<u>52</u>	<u>8</u>	—	—	<u>5</u>
			<u>热工过程自控原理及系统</u> <u>Principles of Thermal Process Automatic Control</u>	<u>4</u>	<u>64</u>	<u>62</u>	<u>4</u>	—	—	<u>6</u>
			<u>热工量测及分析</u> <u>Testing Technology of Thermal Engineering</u>	<u>2.5</u>	<u>40</u>	<u>36</u>	<u>8</u>	—	—	<u>6</u>
			<u>燃烧学</u> <u>Combustion</u>	<u>2.5</u>	<u>40</u>	<u>38</u>	<u>4</u>	—	—	<u>5</u>
			<u>泵与风机</u> <u>Pumps &amp; Fans</u>	<u>2</u>	<u>32</u>	<u>30</u>	<u>4</u>	—	—	<u>5</u>
			<u>发电厂电气设备</u> <u>Electric Equipments of Power Plant</u>	<u>2</u>	<u>32</u>	<u>32</u>	—	—	—	<u>6</u>
			<u>热电冷联产</u> <u>Combined Cooling Heating and Power</u>	<u>2</u>	<u>32</u>	<u>32</u>	—	—	—	<u>7</u>
			<u>电厂热力设备与系统</u> <u>Equipment &amp; System of Heating Engineering</u>	<u>2</u>	<u>32</u>	<u>30</u>	<u>4</u>	—	—	<u>6</u>
			<u>热力发电厂</u> <u>Thermal Power Plant</u>	<u>2</u>	<u>32</u>	<u>30</u>	<u>4</u>	—	—	<u>7</u>
			<u>可持续发展与环境保护</u> <u>Sustainable Development &amp; Environmental Protection</u>	<u>2</u>	<u>32</u>	<u>32</u>	—	—	—	<u>6</u>
实践环节 Practices			<u>《汽轮机原理》课程设计</u> <u>Course Project of Principles of Steam Turbine</u>	<u>2</u>	<u>2</u>					<u>6</u>
			<u>《锅炉原理》课程设计</u> <u>Course Project of Principles of Boiler</u>	<u>2</u>	<u>2</u>					<u>6</u>
			<u>《热工过程自控原理及系统》课程设计</u> <u>Course Project of Thermal Process Automatic Control</u>	<u>2</u>	<u>2</u>					<u>7</u>
			<u>专业创新实验</u> <u>Innovative Experiment</u>	<u>2</u>	<u>2</u>					<u>7</u>
			<u>毕业设计</u> <u>Graduation Project</u>	<u>6</u>	<u>18</u>					<u>8</u>
总计				<u>55.5</u>						

培养方案制订人：学院培养计划制定小组

培养方案审核人：

培养方案批准人：