- **A**

- **B**
- **C**
- **D**
- **E**
- **F**
- **H**
- **G**

I II III

- **K**

		131	29	2125 +32	739	81.8%	18.1%
			24		416		15.0%
			16		274		10.0%
			41		696		25.6%
			21		32		13.1%
			30		32 + 256		18.8%
		29	10	464	160	18.2%	6.25%
			3		48		1.88%
			16		256		10.0%
		160		2589+32		100%	

[ ]

										Notes
	sd02810240		3	58	48					10
	sd02810050		3	58	48					10
	sd02810150		3	58	48					10
	sd02810250		1.5	29	24					5
	sd031100 1-6 0		8	240	128				1 -1	112
	sd029106 3-6 0	(1-4)	4	128	128				1 -2	
	sd01310010		3	64	32		32			
	sd06910010		2	32	32				1 /1	
	sd090100 1-6 0	(1-6)	1.5	72	24				1 -3	48

			29	**739**	**512**		**32**			**195**
	00051		2	32	32					2
	00052		2	32	32					2
	00053		2	32	32					2
	00054		2	32	32					2
	00055		2	32	32					2
			10	**160**	**160**					
	00090		3	48	48					3
			3	**48**	**48**					
	Sd009201(2-3)0	1-2	10	160	160				1-2	
	0192001710		3	48	48				1	
	Sd00920020		3	48	48				3	
	0173204910		3+1	80	48	32			3	
	0173204810		3+1	80	48	32			4	
			24	**416**	**352**	**64**				
		1-2	6	104	88	16			3-4	
	0193100510		3	52	44	8			5	
		1-2	7	118	106	12			4-5	
			16	274	238	36				
	0192001810		3	48	48				3	
	0192001510		2	32	32				4	
	0192001910		4	64	64					
	0102000620		1	32		32			2	
			2	32	32				1	Ñ
	0162000410		3	48	48				1	
			2	32	32				2	
		1-2	6+1	128						

	01917-18	K	16					6-7	

					2	34	30	0	4		6	
					2	32	32	0			6	
					2	32	32	0			6	
			0193305610		2	32	32	0			6	
					10 /22	**360**	**344**	**12**	**4**			

B [B]

	01903	B	0193202310		2	32	32				6	
			0193202210		2	32	32				6	
			0193202110		2	32	32				6	
					6	**96**	**96**					
	01904	B	0193303510		2	32	32				6	
			0193303710		2	32	32				6	
			0193303910		2	32	32				6	
			0193303610		2	32	32				6	
			0193303810		2	32	32				6	
			0193304510		2	32	32				6	
			0193303010		2	32	32				6	
					2	34	30	0	4		6	
			0193304910		2	32	32				6	
					10 /18	**292**	**284**	**8**				

C [C]

	01905	C			3	52	44	8			6	
			0193200810		2	34	30	4			6	
					2	36	30	6			6	
					7	**122**	**104**	**18**				
	01906	C			2	32	32				6	
			0193303110		2	32	32				6	
			0193305710		2	32	32				6	
			0193305010		2	32	32				6	
			0193300710		2	36	28	8			6	
			0193302510		2	32	32				6	
			0193300110	DSP	2	34	30	4			6	
			0193302710		2	32	32				6	
					10 /16	**262**	**250**	**12**				

D [D]

	01907	D	0193201110		2	34	30	4			6	
			0193203010		2	34	30	4			6	
			0193201310		2	34	30	4			6	
			0193304810		2	34	30	4			6	
					8	**136**	**120**	**16**				

	01908	D			2	32	32				6	
			0193302710		2	32	32				6	
			0193300310	Matlab	2	36	28	8			6	
			0193305610		2	32	32				6	
					2	32	32				6	
					2	32	32				6	
					8 /12	196	188	8				

E [E]

	01909	E			3	48	48				6	
					2.5	40	40				6	
					2.5	40	40				6	

F [F]

	01911	F	0193202510		2	32	32				6	
			0193202812		2	32	32				6	
			0193201610		2	32	32				6	
			0193303210		2	32	32				6	
					8	**128**	**128**					
	01912	F	0193302510		2	32	32				6	
			0193301210		2	32	32				6	
			0193301010		2	34	30	4			6	
			0193304410		2	32	32				6	
			0193305210		2	32	32				6	
			0193305110		2	32	32				6	
			0193304610		2	32	32				6	
			0193303410		2	32	32				6	
			0193303310		2	32	32				6	
			0193304710		2	40	24		16		6	
			0193300910		2	32	32				6	
					8 /22	**362**	**342**	**4**	**16**			

H [H]

	01913	H	0193200810		2	34	30	4			6	

			0193201310		2	34	30	4			6	
			0193201110		2	34	30	4			6	
			0193303210		2	32	32				6	
					8	**134**	**122**	**12**				
			0193302510		2	32	32				6	
			0193301210		2	32	32				6	
			0193301010		2	34	30	4			6	
			0193305610		2	32	32				6	
			0193304410		2	32	32				6	
			0193305210		2	32	32				6	
	01914	H	0193305110		2	32	32				6	
			0193304610		2	32	32				6	
			0193303410		2	32	32				6	
			0193303310		2	32	32				6	
			0193304710		2	40	24		16			
			0193300910		2	32	32					
					8 /24	**394**	**374**	**4**	**16**			

G [G]

			0193202410		2	32	32				5	
			0193202010		2	32	32				6	
	01915	G	0193200611	( )	3	52	44	8			6	
			0193200510		3	52	44	8			6	

					10	**168**	**152**	**16**				
	01916	G	0193304710		2	40	24		16		6	
			0193300910		2	32	32				6	
			0193301610		2	34	30	4			6	
			0193302310		2	34	30	4			6	
			0193302010		2	32	32				6	
			0193302510		2	32	32				6	
			0193305610		2	32	32				6	
			0193304510		2	32	32				6	
			0193305210		2	32	32				6	
			0193303210		2	32	32				6	
			0193305110		2	32	32				6	
			0193304610		2	32	32				6	
			0193303410		2	32	32				6	
			0193302410		2	32	32				6	
			0193305510		3	48	48				6	
					6/31	**508**	**484**	**8**	**16**			

K [K]

	01917	K	0193202410		2	32	32				5	
			0193202010		2	32	32				6	
			0193200611	( )	3	52	44	8			6	
			0193202710	*	3	52	44	8			6	

					10	**168**	**152**	**16**				
	01918	K	0193304710		2	40	24		16		6	
			0193300910		2	32	32				6	
			0193301610		2	34	30	4			6	
			0193302310		2	34	30	4			6	
			0193302010		2	32	32				6	
			0193302510		2	32	32				6	
			0193305610		2	32	32				6	
			0193304510		2	32	32				6	
			0193305210		2	32	32				6	
			0193303210		2	32	32				6	
			0193305110		2	32	32				6	
			0193304610		2	32	32				6	
			0193303410		2	32	32				6	
			0193302410		2	32	32				6	
			0193301110		3	52	44	8			6	
					6/31	**512**	**480**	**16**	**16**			

Course Structure of Electrical Engineering and Automation 080601

Major Introduction

The major of Electrical Engineering and Automation takes the Electrical Engineering as the leading discipline, which is closely interconnected with other disciplines such as computer science, control science, and communications, etc. The aim of this major is to train the high-level talents in Electrical Engineering. The graduates of this major have the capability of performing research, teaching, development and management in Electrical Engineering or in related areas.

Academic Objectives

Based on the education idea of combining knowledge, ability and accomplishment, the objective is to train senior engineering talents which are fully developed in moral, wisdom and physique and have the creativity, creative mind and international horizon, and fit the development of electrical engineering in the fields of scientific research,

electrical machinery, analogue electronics, digital electronics, power electronics, computer language, principle and application of computer, signal and system, and fundamental of electrical engineering. Senior students can select different major modules based on society requirements and personal interests, and carry on the several practices such as metalworking practice, field practice, integrated dynamic and digital simulation of power system, graduation design.

Main Laboratory and Practice

The main practices include metalworking practice, field work, production practice, job training, programming design, and final project. The professional experiments includes experiments of electrical theory, analogue/digital electronics, power electronics, micro-computer principle, automatic control theory, electric machinery, and power system dynamic simulations.

Credits

161 Credits

Duration

Four years

Degree:

Bachelor of Engineering.

Major Predominance and characteristics

- **Electric machine and electric drive (referred to as Electric(A))**

Electric machines and electric drives are widely used in power system, automatic equipment, national defense, transportation, industry, daily life and so on. The courses of this major module mainly concerns the principle and characteristics of special or novel electric machines such as control machines and permanent magnet machines, the analysis and design of electric machines, the control techniques of electric machines such as motor speed adjustment and motion control systems. Through the systematic study in this major, students can obtain professional knowledge in electric machine design, automatic control system of electric drives, and can find wide job adaptability in research and development of power system, electric machine, and other industry domains concerned with electric drive, automatic control.

- **Nuclear Power Engineering and Transmission Technology (referred to as Electric(B))**

Nuclear energy is the indispensable part of utilized energy, and is included in our national energy security strategy. It is the main way to peacefully use nuclear energy by generating electric power. This major mainly introduces the nuclear power generation in the aspects of the history of nuclear energy development, the physics and composition of nuclear reactor, the commissioning and operation of PWR nuclear power plant, nuclear reactor safety analysis, the production management and electric operation of nuclear power plant. This major mainly cultivates engineering and technical talents with broad horizon and solid knowledge foundation in the field of power system and nuclear energy.

- **Flexible Power Technology (referred to as Electric(C))**

Power electronics is widely used in the industrial filed of power system, electric drive system and various power supply systems. Flexible power technology, based on the modern power electronics technology, can transform and control power energy flexibly. Currently, flexible power technology is being used in each field of power system, such as power generation, transmission, distribution and end user, and gets rapid development. This major mainly focuses on power electronics and power drive systems theory, analysis, and control, at the same time learning power electronics application in power system. Students are able to work on the technical jobs in the field of the power system and its automation, can also be engaged research and development and other related work in the field of automation and information engineering.,

- **Electric Power System Smart Protection and Control (referred to as Electric (D))**

This professional direction mainly focuses on power system smart protection and the field of security and automation control. As an important part of the power system and a major content of power system automation, smart protection and automation control devices mostly guaranteed the security, stability and reliability operation of the power system. The compulsory courses of this professional direction include Power System Fault Analysis, Power System Relaying Protection and Power System Automatic Control Technology. The main learning contents of this professional direction are the basic theory and method of power system faults analysis and basic principles, rules and methods of security automatic control. This professional direction orients to power system, medium and large industrial and mining enterprises and electrical equipment manufacturers, and trains professional and technical professionals for the scientific research, production and management of the power system protection, security and automation control.

- **High Voltage and Insulation Technology (referred to as Electric (E))**

High Voltage and Insulation Technology Discipline is committed to the research of the basic theory, the innovative technology and the application of high voltage and insulation technology. The main contents include high-voltage insulation technology, power system over voltage, high voltage test techniques and other aspects. And it also places special emphasis on the development of new and interdisciplinary areas, power system grounding technologies, high voltage apparatus on-line monitoring technology, high voltage apparatus, modern gas discharge technology conspectus, dielectric theory, power system electromagnetic compatibility and other aspects. It is one of the fastest growing disciplines in the Electrical Engineering College. The objective is to cultivate senior engineering technical talents with the solid foundation, innovation and the ability to engage in the design, manufacture and operation and maintenance of high voltage electrical equipment in

- **Sustainable Electric Energy System (referred to as Electric(F))**

This program concentrates on control, operation and optimization of sustainable electric energy systems. The compulsory courses include Energy and Environment, Renewable Generation Technology, Interconnection and Integration of Electric Power Generation, and HVDC Power Transmission Technology. The program focuses on sustainable development of energy and the

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This program concentrates on operation, analysis, control and management of power plants and power systems. The required courses include Transient Analysis of Power Systems, Automatic Control Technology of Power Systems, Power System Protection, and HVDC Power Transmission Technology. The program focuses on planning, operation, dispatch and supervision & control of power systems (power plants, power networks and power stations). The program aims at cultivating high-quality engineers with versatile capabilities related to power system operation and control.

- **Electric Power System Economics (G) (referred to as Electric (G))**

This program not only conforms to the requirement of electrical engineering, but also satisfies the demand for engineers who are familiar with regulation of electric power industry. More high-quality compound engineers are greatly needed when electric power industry finishes marketization. Based on the electric power system, the program cultivates high-quality engineers in major predominance of electric power system and its automation Ⅰ Ⅱ Ⅲ especially in areas of electric power technologic economics, power enterprise management and electricity market operation.

- **Transmission Engineering (K) (referred to as Electric (K))**

Transmission is an important part to implement remote transfer of electric power. The building and operating of lines are directly related to security and profit of the power system. The compulsory courses of this program include Engineering Mechanics, Transmission Line Operation and Maintenance etc. The program orients to electric power consultation, electric power transmission & transformation engineering, power grid enterprises and electrical equipment manufacturers, and trains professional and technical personal for the scientific research, production and management.

The proportion of credit hours of courses

<table>
<tr><th>property</th><th colspan="2">Course category</th><th colspan="2">credit</th><th colspan="2">period (hour)</th><th colspan="2">percentage of total credit</th></tr>
<tr><td></td><td colspan="2">compulsory general courses</td><td></td><td>29</td><td></td><td>739</td><td></td><td>18.1%</td></tr>
<tr><td rowspan="6">compulsory courses</td><td colspan="2">basic professional courses</td><td rowspan="6">131</td><td>24</td><td rowspan="6">2125 +32 weeks</td><td>416</td><td rowspan="4">81.8%</td><td>15.0%</td></tr>
<tr><td colspan="2">professional courses</td><td>16</td><td>274</td><td>10.0%</td></tr>
<tr><td colspan="2">major compulsory courses</td><td>41</td><td>696</td><td>25.6%</td></tr>
<tr><td rowspan="2">practice</td><td>exclude experiments</td><td>21</td><td>32 weeks</td><td>13.1%</td></tr>
<tr><td>include experiments</td><td>30</td><td>32 weeks+ 256</td><td></td><td>18.8%</td></tr>
<tr><td colspan="3">core general courses</td><td>10</td><td>160</td><td></td><td></td></tr>
<tr><td>optional courses</td><td colspan="3"></td><td>29</td><td>464</td><td>18.2%</td><td></td></tr>
</table>

Course Assignment and Credit Allocation (Summary Table)

course category	course number	course name	credit	period(hour)	total period			exam method	semester	Notes
					lecture	experiment	simulation on computer			
compulsory general courses	sd02810240	Marxism with Chinese characteristics	3	58	48			paper	Any one	extracurricular 10h
	sd02810050	Morality and Law	3	58	48			paper	Any one	extracurricular 10h
	sd02810150	Basic Principles of Marxism	3	58	48			paper	Any one	extracurricular 10h
	sd02810250	Outline of History of Modern Chinese	1.5	29	24			paper	Any one	extracurricular 5h
	sd031100 1-6 0	College English	8	240	128			paper	1-2	self learn 112h
	sd029106 3-6 0	Physical Education (1-4)	4	128	128			paper	1-4	
	sd01310010	College Computer	3	64	32		32	paper	Any one	
	sd06910010	Military Theory	2	32	32			paper	Any one	
	sd090100 1-6 0	Situation and Policy and Social Practice(1-6)	1.5	72	24				1-6	extracurricular 48h
	subtotal		**29**	**739**	**512**		**32**			extracurricular 195h
core general courses	00051	category of Ancient Chinese Literature	2	32	32				Any one	choose 2 credits
	00052	category of Innovation	2	32	32				Any one	choose 2 credits
	00053	Category of Art	2	32	32				Any one	choose 2 credits
	00054	category of Humanity science	2	32	32				Any one	choose 2 credits
	00055	category of Social science	2	32	32				Any one	choose 2 credits
	subtotal		**10**	**160**	**160**					
optional general courses	00090	Group of optional general courses	3	48	48				Any one	choose 3 credits in school level
	subtotal		**3**	**48**	**48**					
basic professional courses	Sd009201(2-3)0	Higher Mathematics 1-2	10	160	160			paper	1-2	
	0192001710	Linear Algebra	3	48	48			paper	1	
	Sd00920020	Probability Theory and Mathematical statistics	3	48	48			paper	3	
	0173204910	Basics of Digital Electronic Technology	3+1	80	48	32		paper	3	
	0173204810	Basics of Simulated Electronic Technology	3+1	80	48	32		paper	4	
	subtotal		**24**	**416**	**352**	**64**				
profess		Electric Machinery 1-2	6	104	88	16		paper	3-4	

[redacted]

Course Assignment and Credit Allocation (Electric A) [Table 2 A]

category	Course group number	Specialized group name	Course No.	Course Name	credit	period (hour)	total credit			exam method	semester	notes
							lecture	experiment	simulation on computer			
optional professional courses	01901	Electric A		Control System of Electrical drives	3	48	48			paper	6	compulsory
			0193200310	Electric Machine Design	2	32	32			paper	6	compulsory
				Modern Power Converting Technique and Applications	2	32	32			paper	6	compulsory
	Subtotal				**7**	**112**	**112**					
	01902	Electric A	0193200810	Power Systems Analysis	2	34	30	4		test	6	Select five in eleven
			0193202910	Permanent Magnet Machines	2	32	32	0		test	6	Select five in eleven
			0193202610	Micro and Special type Machines	2	34	30	4		test	6	Select five in eleven
				Single Chip Control of Electric Machines	2	32	32	0		test	6	Select five in eleven
			0193304310	PLC Principle and Applications	2	34	30	4		test	6	Select five in eleven
			0193304910	Modern Testing Technology	2	32	32	0		test	6	Select five in eleven
				Operation of Large Synchronous Generators	2	32	32	0		test	6	Select five in eleven
				Computer Simulation Technology	2	34	30	0	4	test	6	Select five in eleven
				Fault Diagnosis of Electric Appliances	2	32	32	0		test	6	Select five in eleven
				Electric Vehicle Drive and Energy Management	2	32	32	0		test	6	Select five in eleven
			0193305610	Renewable Energy Generation	2	32	32	0		test	6	Select five in eleven
	Subtotal				**10 /22**	**360**	**344**	**12**	**4**			

Course Assignment and Credit Allocation (Electric B) [Table 2 B]

category	Course group number	Specialized group name	Course No.	Course Name	credit	period (hour)	total credit			exam method	semester	notes
							lecture	experiment	simulation on computer			
optional professional courses	01903	Electric B	0193202310	Physics Theory of Nuclear Reactor	2	32	32			paper	6	compulsory
			0193202210	System and Devices of Nuclear Power Station	2	32	32			paper	6	compulsory
			0193202110	Debugging and Operation of Nuclear Power Station	2	32	32			paper	6	compulsory
	Subtotal				**6**	**96**	**96**					
	01904	Electric B	0193303510	Principle of Management	2	32	32			test	6	Select five in nine
			0193303710	Past and Future of Nuclear Power	2	32	32			test	6	Select five in nine
			0193303910	Safety Analysis of Nuclear Reactor	2	32	32			test	6	Select five in nine
			0193303610	Electrical Equipment Operation of Nuclear Power Station	2	32	32			test	6	Select five in nine
			0193303810	Management of Nuclear Power Station	2	32	32			test	6	Select five in nine
			0193304510	Energy Utilization and Environmental Sustainability	2	32	32			test	6	Select five in nine
			0193303010	High Voltage Apparatus	2	32	32			test	6	Select five in nine
				Computer Simulation Technology	2	34	28	8		test	6	Select five in nine
			0193304910	Modern Testing Technology	2	32	32			test	6	Select five in nine
	Subtotal				**10/18**	**292**	**284**	**8**				

Course Assignment and Credit Allocation (Electric C) [Table 2 C]

catego	Course	Special	Course No.	Course Name	cred	pe	total credit	exam	semest	notes

ry	group number	ized group name			it	riod (hour)	lecture	experiment	simulation on computer	method	er	
optional professional courses	01905	Electric C		Power Electronics Equipments and Applications	3	52	44	8		paper	6	compulsory
			0193200810	Power Systems Analysis	2	34	30	4		paper	6	compulsory
				Power Electronics Control System	2	36	30	6		paper	6	compulsory
	Subtotal				**7**	**122**	**104**	**18**				
	01906	Electric C		Flexible power technology	2	32	32			test	6	Select five in eight
			0193303110	High Voltage Direct Current Power Transmission	2	32	32			test	6	Select five in eight
			0193305710	Renewable Energy Generation and Grid Connected	2	32	32			test	6	Select five in eight
			0193305010	Modern Power Electronics Devices	2	32	32			test	6	Select five in eight
			0193300710	Simulation of Power Electronics Systems	2	36	28	8		test	6	Select five in eight
			0193302510	Power Quality Control	2	32	32			test	6	Select five in eight
			0193300110	DSP Principle and Applications	2	34	30	4		test	6	Select five in eight
			0193302710	Power Plant and Power Station Control	2	32	32			test	6	Select five in eight
	Subtotal				**10 /16**	**262**	**250**	**12**				

Course Assignment and Credit Allocation (Electric D) [Table 2 D]

category	Course group number	Specialized group name	Course No.	Course Name	credit	period (hour)	total credit			exam method	semester	notes
							lecture	experiment	simulation on computer			
optional professional course	01907	Electric D	0193201110	Power System Protective Relaying	2	34	30	4		paper	6	compulsory
			0193203010	Faulted Power System Analysis	2	34	30	4		paper	6	compulsory

s			0193201310	Power System Automatic Control Technology	2	34	30	4		paper	6	compulsory
			0193304810	Microcomputer-based Relay Protection	2	34	30	4		paper	6	compulsory
			Subtotal		**8**	**136**	**120**	**16**				

M ` puˇQ

			0193305310	Modern Gas Discharge Technology Conspectus	2	32	32			test	6	select four in seven
			0193300610	dielectric theory	2	32	32			test	6	select four in seven
			0193301510	Power System Electromagnetic Compatibility	2	32	32			test	6	select four in seven
			0193303110	High Voltage Direct-current Transmission	2	32	32			test	6	select four in seven
	Subtotal				**8 /14**	**224**	**224**					

Course Assignment and Credit Allocation (Electric F) [Table 2 F]

category	Course group number	Specialized group name	Course No.	Course Name	credit	period (hour)	total credit			exam method	semester	notes
							lecture	experiment	simulation on computer			
optional professional courses	01911	Electric F	0193202510	Energy and environment	2	32	32			paper	6	compulsory
			0193202812	Renewable Generation Technology	2	32	32			paper	6	compulsory
			0193201610	Interconnection and Integration of Electric Power Generation Systems	2	32	32			paper	6	compulsory
			0193303210	HVDC Power Transmission Technology	2	32	32			paper	6	compulsory
	Subtotal				**8**	**128**	**128**					
	01912	Electric F	0193302510	Power Quality Control	2	32	32			test	6	select four in eleven
			0193301210	Introduction to Electric Power Market	2	32	32			test	6	select four in eleven
			0193301010	Management of Electrical Enterprises	2	34	30	4		test	6	select four in eleven
			0193304410	Energy Economics and Policy	2	32	32			test	6	select four in eleven
			0193305210	Energy Management System	2	32	32			test	6	select four in eleven
			0193305110	Modern Power System Communication Technology	2	32	32			test	6	select four in eleven

			0193304610	Automation of Distribution Systems	2	32	32			test	6	select four in eleven
			0193303410	Power Supply and Distribution Engineering	2	32	32			test	6	select four in eleven
			0193303310	Introduction to Engineering Economics	2	32	32			test	6	select four in eleven
			0193304710	Database Technique	2	40	24		16	test	6	select four in eleven
			0193300910	Electric Power Law	2	32	32			test	6	select four in eleven
	Subtotal				**8 /22**	**362**	**342**	**4**	**16**			

Course Assignment and Credit Allocation (Electric H) [Table 2 H]

category	Course group number	Specialized group name	Course No.	Course Name	credit	period (hour)	total credit			exam method	semester	notes
							lecture	experiment	simulation on computer			
			0193200810	Power Systems Analysis	2	34	30	4		paper	6	compulsory
			0193201310	Automatic Control Technology of Power Systems	2	34	30	4		paper	6	compulsory
	01913	Electric H										Power Syste "

optional professional courses

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			0193304610	Automation of Distribution Systems	2	32	32			test	6	select four in twelve
			0193303410	Power Supply and Distribution Engineering	2	32	32			test	6	select four in twelve
			0193303310	Introduction to Engineering Economics	2	32	32			test	6	select four in twelve
			0193304710	Database Technology	2	40	24		16	test		select four in twelve
			0193300910	Electric Power Law	2	32	32			test		select four in twelve
	Subtotal				**8 /24**	**394**	**374**	**4**	**16**			

Course Assignment and Credit Allocation (Electric G) [Table 2 G]

category	Course group number	Specialized group name	Course No.	Course Name	credit	period (hour)	total credit			exam method	semester	notes
							lecture	experiment	simulation on computer			
optional professional courses	01915	Electric G	0193202410	Principles of Economics	2	32	32			paper	5	compulsory
			0193202010	Introduction to Engineering Economics	2	32	32			paper	6	compulsory
			0193200611	Principle of Electricity Market	3	52	44	8		paper	6	compulsory
			0193200510	Management of Electrical Enterprises	3	52	44	8		paper	6	compulsory
	Subtotal				**10**	**168**	**152**	**16**				
	01916	Electric G	0193304710	Database Technique	2	40	24		16	test	6	select three in fifteen
			0193300910	Electric Power Law	2	32	32			test	6	select three in fifteen
			0193301610	Power Systems Analysis	2	34	30	4		test	6	select three in fifteen
			0193302310	Auto-control Technology of Power Systems	2	34	30	4		test	6	select three in fifteen
			0193302010	Power System Relay Protection	2	32	32			test	6	select three in fifteen
			0193302510	Power Quality Control	2	32	32			test	6	select three in fifteen
			0193305610	Renewable Power Generation	2	32	32			test	6	select three in fifteen

			0193304510	Energy Utilization and Environmental Sustainability	2	32	32			test	6	select three in fifteen
			0193305210	Energy Management System	2	32	32			test	6	select three in fifteen
			0193303210	HVDC power Transmission Technology	2	32	32			test	6	select three in fifteen
			0193305110	Modern Power System Communication Technology	2	32	32			test	6	select three in fifteen
			0193304610	Automation of Distribution Systems	2	32	32			test	6	select three in fifteen

			0193302010	Power System Relay Protection	2	32	32			test	6	select three in fifteen
			0193302510	Power Quality Control	2	32	32			test	6	select three in fifteen
			0193305610	Renewable Power Generation	2	32	32			test	6	select three in fifteen
			0193304510	Energy Utilization and Environmental Sustainability	2	32	32			test	6	select three in fifteen
			0193305210	Energy Management System	2	32	32			test	6	select three in fifteen
			0193303210	HVDC power Transmission Technology	2	32	32			test	6	select three in fifteen
			0193305110	Modern Power System Communication Technology	2	32	32			test	6	select three in fifteen
			0193304610	Automation of Distribution Systems	2	32	32			test	6	select three in fifteen
			0193303410	Power Supply and Distribution Engineering	2	32	32			test	6	select three in fifteen
			0193302410	Electricity marketing Management	2	32	32			test	6	select three in fifteen
			0193301110	Management of Electrical Enterprises	3	52	44	8		test	6	select three in fifteen
	Subtotal				**6/31**	**512**	**480**	**16**	**16**			