Railways Power Supply

- the general direction of the program – Railway Power Supply;
- the qualification to be given – academic certificate;
- the terms of training on the program – from February to June;
- the language of training – English;
- the specification of the disciplines and brief summaries

Overhead wiring and ELT (electrical transmission line) is special discipline studies the electrical energy transmit to trains at a distance from the energy supply point. The overhead contact system (OCS) and electric-power transmission course includes such parts as general information about power transmission lines, electrified railways overhead wiring, catenary classification, climatic factors and design loads acting on overhead wiring elements and ELT, OCS and ELT support, protection and sectioning devices, insulating elements, OCS and ELT thermal design, OCS and ELT wind resistance and oscillations, OCS and ELT parameters and characteristics, electric rolling stock pantographs, pantographs and catenary interaction, rigid catenary system, contact wires, conductors and current collectors plates wear.

Designing and operation of current-collecting device. Electric current collectors are used for trolleybuses, trams, underground and electric locomotives to lead electrical power from overhead lines or electrical third rails to the electrical equipment of the vehicles. This discipline studies pantographs and catenary interaction from the points of mechanical, electrical and heating processes view. It is studying methods and ways of prognoses contact element wearing. The discipline educated determining the quality of current collection by using unique OSTU laboratory equipments. Course includes the overview of the latest achievement in foreign and Russian pantograph producing.

Rectifier substations. A traction substation or traction current converter plant is an electrical substation that converts electric power from the form provided by the electrical power industry for public utility service to an appropriate voltage, current type and frequency to supply railways, underground and other transport with traction current. The discipline is very important for railway specialists because it gives serious and basic knowledge in AC and DC power electro supplying area.

Relay protection is a branch of electrical power engineering that deals with the protection of electrical power systems from faults through the isolation of faulted parts from the rest of the electrical network. The objective of a protection scheme is to keep the power system stable by isolating only the components that are under fault, whilst leaving as much of the network as possible still in operation. Protection schemes must apply a very pragmatic and pessimistic approach to clearing system faults especially in such responsible railway brunch.

General railways course is basic overview discipline studying Russian railways system. The course includes basics of railway electro supplying, transmission and providing energy taking into account specific Russian operation condition. The discipline considers AC and DC railway rolling stock, automation and remote control systems, railroad tracks and etcetera by using OSTU railway proving ground.

- the academic hours for each discipline

№№	Specification of the disciplines	Class hours			The total number of hours
		Lectures	Laboratory	Practical	
1.	Overhead wiring and ELT (electrical transmission line)	30	30	30	288
2.	Designing and operation of current-collecting device	14	-	16	108
3.	Rectifier substations	30	30	30	288
4.	Relay protection	30	30	30	288
5.	General railways course	16	-	-	108
	Total	316			1080

- the forms of control

№№	Name of subject	forms of control
1.	Overhead wiring and ELT (electrical transmission line)	exam
2.	Designing and operation of current-collecting device	credit
3.	Rectifier substations	exam
4.	Relay protection	exam
5.	General railways course	credit

- the credits given

№№	Specification of the disciplines	Credits (ECTS)
1.	Overhead wiring and ELT (electrical transmission line)	8
2.	Designing and operation of current-collecting device	3
3.	Rectifier substations	8
4.	Relay protection	8
5.	General railways course	3
	Total	30

- the requirements for the level of initial knowledge for mastering the program – bachelor in electromechanically or electric power areas.