

Echipamente electrice II

Electrical equipment II

Obiectiv principal

Disciplina are ca obiectiv prezentarea bazelor teoretice de functionare a echipamentelor electrice (continuarea celor prezentate in partea I) , a solutiilor constructive de principiu ale principalelor clase de echipamente, a elementelor de modernitate in dezvoltarea de echipamente electrice. Prezentarea constructiei de echipamente va fi corelata cu principalele realizari ale firmelor constructoare de prestigiu in domeniu.

Course Objective

The discipline aims at presenting the theoretical bases of electrical equipment operation (continuation of those presented in Part I), the constructive principles of the main equipment classes, the elements of modernity in the development of electrical equipment. The presentation of the equipment construction will be correlated with the main achievements of the prestigious construction companies in the field

Curs

3 ore/săptămână, total 42 ore

- Structura sistemica a echipamentului electric. Componente de baza. Materiale de constructie. Solutii constructive de principiu.
- Arcul electric. Metode de stingere. Dispozitive de stingere.
- Sisteme izolante ale echipamentelor electrice. Performante. Materiale specifice
- Intreruptorul de inalta tensiune. Solutii constructive. Principiul comutatiei in ulei. Principiul comutatiei in SF6. Materiale si tehnologii specifice. Întreruptorul cu SF6. Principiul comutatiei in vid. Intreruptorul cu vid. Materiale si tehnologii specifice. Specificatii tehnice. Criterii de alegere
- Mecanisme de actionare.
- Intreruptorul automat de joasa tensiune (ex. Oromax, sau tip Moller)
- Siguranta fuzibila. Functionare. Selectivitate. Materiale si tehnologii specifice. Specificatii tehnice. Criterii de alegere
- Descarcatorul- constructii clasice si moderne. Criterii de alegere
- Sisteme de protectie clasica si digitala
- Aparataj in carcasa metalica de medie tensiune. Reanclansatorul. Criterii de alegere
- Instalatii capsulate in SF6

Course

3 hours weekly, 42 hours total

- Systemic structure of electrical equipment. Basic components. Construction materials.Principles.of constructive solutions
- The electric arc. Extinguishing methods and devices.
- Insulating systems of electrical equipment. Performances. Specific materials
- High-voltage circuit breakers. Constructive solutions. The principle of oil switching. Switching principle in SF6. Specific materials and technologies. The SF6 switching. The principle of vacuum switching. Vacuum circuit breaker. Specific materials and technologies. Technical specifications. Criteria of circuit breaker selection
- Driving mechanisms.
- Automatic low-voltage circuit breaker (ex. Oromax, or Moller type)
- Fuses. Operating. Discrimination. Specific materials and technologies. Technical specifications. Criteria of selection
- Surge arreTERS- clascal and modern constructions. Criteria of selection
- Conventional and digital protection systems
- Medium voltage metal clad switchgear. Recloser. Criteria of selection
- Gas insulated switchgear (SF6 GIS)

Laborator

2 ore/săptămână, total 28 ore

- Studiul repartițiilor tensiunilor înalte pe lanțul de izolatoare, cu ajutorul unui model fizic de joasa tensiune.
- Studiul experimental al releelor electromagnetice (maximal de current si minimal de tensiune)
- Studiul experimental al releului cu disc de inducție
- Studiul experimental al releului de frecvență minimă
- Studiul experimental al contactoarelor

Laboratory

2 hours weekly, 28 hours total

- Experimental study of high voltage distributions along the insulators chain, using a physical model of low voltage.
- Experimental study of electromagnetic relays (maximum current and minimum voltage)
- Study of induction disk relay
- Experimental study of minimum frequency relay
- Experimental study of electromagnetic contactors
- Experimental study of electric arc

electromagnetice

- Studiul experimental al arcului electric
- Studiul experimental al întreruptorului cu ulei puțin de medie tensiune
- Studiul experimental al întreruptorului cu mare putere de rupere, de joasă tensiune, Oromax and Moller
- Studiul experimental al siguranțelor fuzibile
- Studiul experimental al celulelor prefabricate de medie tensiune si al descarcatoarelor electrice
- Studiul experimental al releului direcțional
- Evaluarea finala a studentilor

- Experimental study of oil medium voltage circuit breaker
- Experimental study of low voltage and high switching power circuit breaker types Oromax and Moller
- Experimental fuses characteristics study.
- Experimental study of medium voltage metal clad switchgear and of surge arreTERS
- Experimental study of directional relay
- Final evaluation of students