O.Birchenko, K.Chala

National University of Food Technologies, Kyiv, Ukraine

Electrical Power Industry

Electrical engineering has now subdivided into a wide range of subfields including electronics, digital computers, computer engineering, power engineering, telecommunications, control systems, radio-frequency engineering, signal processing, instrumentation, and microelectronics. Many of these subdisciplines overlap and also overlap with other engineering branches, spanning a huge number of specializations such as hardware engineering, power electronics, electromagnetics & waves, microwave engineering, nanotechnology, electrochemistry, renewable energies, mechatronics, electrical materials science, and much more.

It is crucial to understand the Electrical engineering is a professional engineering discipline that generally deals with the study and application of electricity, electronics, and electromagnetism. This field first became an identifiable occupation in the later half of the 19th century after commercialization of the electric telegraph, the telephone, and electric power distribution and use. Subsequently, broadcasting and recording media made electronics part of daily life. The invention of the transistor, and later the integrated circuit, brought down the cost of electronics to the point they can be used in almost any household object.

But what is the electricity? From the scientific point of view, the electricity is a particular set of physical phenomena which is characterized by the presence and the distinctive flow of electric charge. It is created when the small particles – electrons move between the atoms. This process creates an electric current. And this current is used to energize different kinds of equipment. Electrical Power Industry can be fair enough called a backbone of the modern industry and everyday life.

We use electrical power for heating, cooling and lighting our houses, for cooking food, and for numerous devices and gadgets such TV-sets, computers and smartphones. Electrical power has become the essential necessity for the modern

society. But unfortunately not all people in the world have an access to this source of energy. Millions of people in poor countries have to survive without the advantages of electrical power.

Besides the obvious advantages that electrical power brings to our life there is a definite set of threats that this modern technology causes. The process of electricity generation on different kinds of power stations often is not so harmless to the nature. One of the most efficient but dangerous means of electricity generation is a nuclear power station. Though this is one of the most effective ways to generate electricity for the needs of the society, the disastrous catastrophes in Chernobyl and Fukusima showed us how dangerous nuclear power is.

The process of nature friendly electricity generation has been developing greatly these days. Wind power, solar power and the power of the ocean are used to generate safe and cheap electricity that will be able to bring our life to the next level of evolution.

Electrical engineering became a profession in the later 19th century. Practitioners had created a global electric telegraph network and the first professional electrical engineering institutions were founded in the UK and USA to support the new discipline. Although it is impossible to precisely pinpoint a first electrical engineer, Francis Ronalds stands ahead of the field, who created the first working electric telegraph system in 1816 and documented his vision of how the world could be transformed by electricity. Over 50 years later, he joined the new Society of Telegraph Engineers (soon to be renamed the Institution of Electrical Engineers) where he was regarded by other members as the first of their cohort. By the end of the 19th century, the world had been forever changed by the rapid communication made possible by the engineering development of land-lines, submarine cables, and, from about 1890, wireless telegraphy.

Practical applications and advances in such fields created an increasing need for standardised units of measure. They led to the international standardization of the units volt, ampere, coulomb, ohm, farad, and henry. This was achieved at an international conference in Chicago in 1893. The publication of these standards

formed the basis of future advances in standardisation in various industries, and in many countries, the definitions were immediately recognized in relevant legislation. During these years, the study of electricity was largely considered to be a subfield of physics since the early electrical technology was considered electromechanical in nature. The Technische Universitat Darmstadt founded the world's first department of electrical engineering in 1882. The first electrical engineering degree program was started at Massachusetts Institute of Technology (MIT) in the physics department under Professor Charles Cross, though it was Cornell University to produce the world's first electrical engineering graduates in 1885. The first course in electrical engineering was taught in 1883 in Cornell's Sibley College of Mechanical Engineering and Mechanic Arts. It was not until about 1885 that Cornell President Andrew Dickson White established the first Department of Electrical Engineering in the United States. In the same year, University College London founded the first chair of electrical engineering in Great Britain. Professor Mendell P. Weinbach at University of Missouri soon followed suit by establishing the electrical engineering department in 1886. Afterwards, universities and institutes of technology gradually started to offer electrical engineering programs to their students all over the world.

Literature:

1. http://tooday.ru/?l=eng&r=17&t=electrical_power_industry-elektroenergetika-da
2. https://en.wikipedia.org/wiki/Electrical_engineering
3. http://www.correctenglish.ru/reading/topics/electricity/