



UNIVERSITY OF ORADEA
FACULTY OF ELECTRICAL ENGINEERING AND INFORMATION
TECHNOLOGY

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TOPICS AND BIBLIOGRAPHY

for the contest – ASSOCIATE PROFESSOR, position no. 22

Department of Electrical Engineering

Faculty of Electrical Engineering and Information Technology

University of Oradea

- Disciplines in the curricula:**
- Superconductors and superconducting systems;
 - Electrical Circuits Theory II;
 - Introduction to computer engineering and programming;

Topics:

DIDACTIC LECTURE TOPICS

Superconductors and superconducting systems

1. The influence of magnetic field on the superconducting state;
2. Aspects regarding the free superconductor energy;
3. Critical field variation related to temperature and magnetization of the superconductors;
4. Thermodynamic analysis of the transition from the normal state in the superconducting state;
5. Aspects regarding the entropy of superconducting state;
6. Thermal conductivity and thermoelectric effects that occur in the superconducting state;
7. The manner to displacement of currents in superconductors;
8. Critical currents, thermal propagation and the intermediate state induced by a current;
9. Tunneling and the banned band;
10. The tunneling process between a base metal and a superconductor and the tunneling between two superconducting identical;

Bibliography:

1. Charles P. Poole, Jr., Horacio A. Farach, Richard J. Creswick, Ruslan Prozorov – Superconductivity – Academic Press in print of Elsevier, second edition, 2007;
2. V.D. Șoproni, Supraconductori și sisteme supraconductoare, Editura Universității din Oradea, 2003;

3. The 1998 Applied Superconductivity Conference, Desert Springs Resort, Palm Desert, California, September 13-18, 1998;
4. A.V. Novac, Modele conceptuale în supraconductibilitate, Editura Tehnică, 1995;
5. R. Baker, J.C. Thompson, A PSimple Demonstration of High T Superconductive Powder. *Journal of Chemical Education*, volume 64, October 1987;
6. S. G. Davis, The superconductive computer in you future. *Datamation*, Volume 33:74, August 15, 1987;
7. Superconduction possible at room temperatures? *Radio-Electronics*, Volume 58:5, July 1987;

Electrical Circuits Theory II

1. Circuits and three-phase systems. Aspects regarding the star connection of three phase electrical systems;
2. Circuits and three-phase systems. Aspects regarding the delta connection of three phase electrical systems;
3. Circuits and three-phase systems. Aspects regarding the active, reactive and aparent electric power in three-phase systems;
4. Linear electric circuits in transient regime. Direct method of analysis applied to the RL series circuits in transient regime;
5. Linear electric circuits in transient regime. Direct method of analysis applied to the RL series circuits in transient regime;
6. Linear electric circuits in transient regime. The Laplace transform method for networks in null initial conditions. The methods algorithm;
7. Linear electric circuits in transient regime. The Laplace transform method for networks in nonnull initial conditions. The methods algorithm;
8. The Electric Quadripole. Types of interconnections of the quadripole: chain connection;
9. The Electric Quadripole. Types of interconnections of the quadripole: parallel connection;
10. The Electric Quadripole. Types of interconnections of the quadripole: series- parallel connection and parallel – series conection

Bibliography:

1. Leuca, T., Molnar Carmen - Circuite electrice. Aplicații utilizând tehnici informatice, Ed. Univ. din Oradea, 2002;
2. Leuca T., Carmen Otilia Molnar, Arion M. N. – Elemente de bazele electrotehnicii. Aplicații utilizând tehnici informatice. Editura Universității din Oradea, 2014;
3. Mocanu, C. I. - Teoria câmpului electromagnetic, Ed. Didactică și Pedagogică, București, 1981;
4. Mocanu, C. I. - Teoria circuitelor electrice, Ed. Didactică și Pedagogică, București, 1979;
5. Moraru A. – Bazele electrotehnicii, Teoria circuitelor electrice, Ed. Matrix Rom, București, 2002;
6. Șora, C. - Bazele electrotehnicii, Ed. Didactică și Pedagogică, București, 1982;
7. Preda, M., Cristea, P. - Analiza și sinteza circuitelor electrice, Ed. Tehnică București, 1968;
8. Simion, E., Maghiar, T. - Electrotehnică, Ed. Didactică și Pedagogică, București, 1981;

Introduction to computer engineering and programming

1. Basic concepts of hardware, software and IT;
2. The main parts of a computer. Părțile principale ale computerului;
3. The initiation in the computer operation. Operating systems;
4. MS Office, word processing, spreadsheet;

5. The concept of Internet, search engines;
6. Security, copyright protection and digital piracy law;
7. Algorithms. C ++ programming environment;
8. Structure of a source program in C language;
9. The graphics in C;
10. Programs and algorithms for sorting and searching.

Bibliography:

1. Liviu Negrescu, Lavinia Negrescu – Limbajul C# pentru începători, Vol. 6, 7, 8, Editura Albastră, 2012;
2. Ciprian Ghișe – Programare în C++. Algoritmi fundamentali, Editura Rovimed, 2015;
3. Liliana Comarnic – Dynamic programming problems. Tutorial realized in C++ Builder, Editura Rovimed, 2015;
4. Ciprian Ghișe – Algoritmi de sortare, Editura Rovimed, 2015.
5. Matt Smith – Office 2010 – Ultimate tips and tricks – Microsoft Edition, 2010;
6. Microsoft Office Home and Business 2010 – Microsoft Edition, 2010;
7. AntiSpam Viruși Pop – Up Spyware – Ken Feinstein, Editura Rosetti Educational, 2006;
8. Francisc Ioan Hathazi – Utilizarea Calculatoarelor, Ed. Universității din Oradea, 2006;

Department Director,