



UNIVERSITATEA DIN ORADEA
FACULTATEA DE INGINERIE ELECTRICĂ ȘI
TEHNOLOGIA INFORMAȚIEI

Oradea, Str. Universității nr.1, ORADEA, cod 410087, Tel.: 0259-408104, 0259-408204,
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www.uoradea.ro, <http://www.ieti.uoradea.ro>



TOPICS

for the contest – PROFESSOR, position no. 7

Department of Electrical Engineering

Faculty of Electrical Engineering and Information Technology

University of Oradea

- Disciplines:**
- **Theory of electrical circuits II;**
 - **Superconductors and superconducting systems;**
 - **Applied informatics / Applied informatics I;**

DIDACTIC LECTURE TOPICS

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 RC 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

Superconductors and superconducting systems

1. The influence of magnetic field on the superconducting state;



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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;

Applied informatics / Applied informatics I

1. The architecture of the computing systems;
2. Operating systems;
3. Basic concepts of hardware, software and IT;
4. Advanced editing techniques, spreadsheet calculation;
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.

Department Director,

Associate professor PhD habil. Hathazi Francisc – Ioan