**Course Syllabus**

Academic year: 2020-2021

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| Institution | University of Petroşani |
| Faculty | Mechanical and Electric Engineering |
| Field of study | Electrical Engineering |
| Level | Master |
| Program of study | Operation of Industrial Electrical Installations |

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| Course | **Energy Diagnosis and Prognosis** |
| Code | 2MEIEIAD14 |
| Year of study (semester) | II(I) |
| Number of hours | 70 |
| Number of credits | 6 |
| Professor | Professor Ph.D. Ion FOTĂU |

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| **No.** | **Topic** |
|  | Introduction. Basic concepts. Methods for monitoring and diagnosing electrical systems. Theoretical substantiation of online diagnostic methods. |
|  | Diagnosis. Basic concepts in process diagnosis. Classification of methods for diagnosis. |
|  | Basic functions and performance criteria of diagnostic systems. |
|  | Diagnostic systems for drive systems. |
|  | GIS – Geographic Information Systems. Artificial intelligence. Expert systems. |
|  | Maintenance of electrical systems. Monitoring and diagnostic systems for electrical transformers. Monitoring parameters and insulation quality; internal temperature monitoring. |
|  | Modern monitoring systems - management of electricity consumption. Specialized hardware and software equipment. |
|  | Monitoring and diagnosis systems for electrical circuit breakers. Structure. Functions. Algorithm and block diagram of the monitoring system. |
|  | Systems for on-line monitoring and diagnosis of electrical and non-electrical parameters in energy installations. |
|  | Off-line monitoring and diagnosis of energy installations using thermal imaging systems. |
|  | Monitoring and control of DHW / Central Heating Systems. Architecture. Monitoring a thermal point. |
|  | Use of software simulators in the process of monitoring / managing the installations. |