**Course Syllabus**

Academic year: 2020-2021

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| Institution | University of Petroşani |
| Faculty | Mechanical and Electrical Engineering |
| Field of study | Power Engineering |
| Level | Bachelor |
| Program of study | Industrial Power Engineering |

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| Course | **Thermal Equipment and Installations** |
| Code | 2II4OD33 |
| Year of study (semester) | II (II) |
| Number of hours | 56 |
| Number of credits | 3 |
| Professor | Assoc. Prof., Ph.D. DOSA Ion |

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| **No.** | **Topic** |
|  | Heat Exchangers. Heat Exchanger Types. Thermal Calculation of Heat Exchangers. Basic Equations. |
|  | Overall Heat Transfer Coefficient. Log Mean Temperature Difference. |
|  | Heat Exchanger Analysis. The F Correction Factor Method. The Effectiveness–NTU Method. |
|  | Θ - P - R – NTU Method. Scale Formation in Heat Exchangers. Thermal Calculation of Heat-Recovery Heat Exchangers. Energy Performance of Heat Exchangers. |
|  | Steam Boilers. Steam Boiler Schematic. Common Types of Fuels Used in Steam Boilers. |
|  | Water-Steam Cycle in Steam Boiler. Natural Circulation Steam Boilers. Forced Circulation Steam Boilers. Steam Boiler with Single Forced Circulation. |
|  | Operating Parameters of Steam Boilers. Air and Flue Gas Circuit. Methods of Coal Combustion. Coal Combustion on Moving Grate. |
|  | Pulverized Coal-Fired Boiler. Fluidized-Bed Combustion. Energy Analysis of Steam Boiler. |
|  | Thermal Balance. Steam Boiler Efficiency. Energy Characteristic of The Steam Boiler. |
|  | Steam Turbines. Basic Types of Steam Turbines. Steam Turbine Stage Calculations. |
|  | Reaction Steam Turbine. Impulse Steam Turbine. |
|  | Steam Turbine Velocity Diagram. Force and Momentum Available at Blades. Steam Turbine Power. |
|  | Peripheral Efficiency. Peripheral Efficiency of Impulse Stage. Peripheral Efficiency Of 50% Reaction Stage. |
|  | Energy Losses of The Steam Turbine. Secondary Internal Losses. External Losses. Turbine Efficiency and Steam Consumption. |