PETROLEUM-GAS UNIVERSITY OF PLOIEȘTI
PhD Programme

Field of **CHEMICAL ENGINEERING**

Approved in the CSD meeting _____

Doctoral School Director
Prof. habil. PhD. Eng. Mihai Albulescu

SYLLABUS

THERMODYNAMICS AND CHEMICAL KINETICS

Discipline category: **Advanced knowledge**

Number of hours for study: **210**

Number of credits allocated: 1**5**

Evaluation form: **Exam**

CONTENT

1. **The first law of thermodynamics and basic concepts**
2. **Volumetric proprieties of pure fluids**
3. **Thermal effects of chemical processes**
4. **The second law of thermodynamics**
5. **Thermodynamic proprieties of fluids**
6. **Phase equilibria**
7. **Chemical equilibrium**
8. **Thermodynamic analysis of chemical processes**
9. **Basic kinetic concepts**
10. **Analysis of kinetic results**
11. **Activation energy**
12. **Theories of reaction speed**
13. **Elementary reactions in gas and liquid phase**
14. **Surface reactions.**

REFERENCES

1. Smith J.M., Van Ness H.C., Abbott M.M., Chemical engineering Thermodinamics 6th ed., McGraw – Hill, 2001
2. Laidler K.J., Chemical kinetics - 3rd ed., Harper Collins Publishers, 1987.

Discipline coordinator,

Prof. PhD. Eng. Dragoș Ciuparu

Responsible for the PhD field,

Prof. habil. PhD. Eng. Diana Cursaru