ANALYSE APPLIQUÉE

APPLIED ANALYSIS

Lecturers: **Elisabeth MIRONESCU, Philippe MICHEL**

| Lecturers : 14 | TC : 20.0 | PW : 0.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : FR

Objectives

This course presents the basic tools of mathematical analysis necessary for the study of the models encountered in engineering and research.

Keywords : Mathematical analysis, integration, optimization, ordinary differential equations.

Programme

Notions of differential calculus. Optimization: free and bound extrema. Integration. Ordinary differential equations.

Learning outcomes

  • Be able to study an optimization problem without or with constraint, existence of extremum, optimality conditions, Lagrange multipliers.
  • Mastering integral calculus.
  • Be able to study a system of differential equations (existence, elementary qualitative analysis).
  • Knowing how to situate the degree of difficulty in the mathematical analysis of a problem.

Independent study

Objectifs :   This activity is not concerned with framed autonomy activities outside personal work.

Méhodes :   This activity is not concerned with framed autonomy activities outside personal work.

Core texts

J. Saint Raymond, *TOPOLOGIE, CALCUL DIFFÉRENTIEL ET VARIABLE COMPLEXE.*, Calvage and Mounet, 2008
G. Allaire *ANALYSE NUMÉRIQUE ET OPTIMISATION.*, Editions de l'Ecole Polytechnique, Ellipses, 2005
S. Benzoni*CALCUL DIFFÉRENTIEL ET ÉQUATIONS DIFFÉRENTIELLES.*, Dunod, 2014

Assessment

Final mark = 80% Knowledge + 20% Know-how
Knowledge mark = 100% final exam + 0% continuous assessment
Know-how mark = 0% final exam + 100% continuous assessment