

**METODE NUMERICE / NUMERICAL METHODS**  
**SUBIECTE DE EXAMEN (2019-2020)**

<http://www.cosminchiorean.com/students.html>  
<http://users.utcluj.ro/~ccosmin/Analiza.htm>

**PARTEA I/PART I**

1. Ordin de convergenta. Convergenta liniara./ **Order and Rate of Convergence. Linear Convergence**
2. Metoda bisectiei pentru rezolvarea ecuatiilor neliniare de forma  $f(x)=0$ . / **Bisection Method for solving nonlinear equations defined as  $f(x)=0$ .**
3. Metoda Newton pentru rezolvarea ecuatiilor neliniare de forma  $f(x)=0$ . / **Newton method for solving nonlinear equations defined as  $f(x)=0$**
5. Teoreme de punct fix. Aplicatie contractanta. / **Fixed point theorems. Contraction application.**
6. Metoda punctului fix pentru rezolvarea ecuatiilor neliniare de forma  $x=g(x)$ . Interpretare geometrica, estimarea erorii/ **Fixed point method for solving nonlinear equations defines as  $x=g(x)$ . Geometrical interpretation, error estimation.**
7. Proceduri explicite de punct fix/ **Explicit procedures of fixed point**
8. Extrapolarea Aitken / **Aitken extrapolation**

**PARTEA II / PART II**

1. Sisteme de ecuatii neliniare. Metoda Newton./ **Nonlinear system of equations. Newton method.**
3. Sisteme de ecuatii liniare. Metoda eliminarii Gauss/ **Linear system of equations. Gauss method.**
4. Sisteme de ecuatii liniare. Metoda Cholesky. / **Linear system of equations. Cholesky method.**
5. Sisteme de ecuatii liniare. Metoda Jacobi. / **Linear system of equations. Jacobi method.**
6. Conditionarea sistemelor de ecuatii liniare. / **Ill and well conditioned linear system of equations. Condition number.**

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