

**“POLITEHNICA “ UNIVERSITY OF TIMIȘOARA**

**SYLLABUS**  
for the discipline:

***SPECIAL CHAPTERS IN MATHEMATICS***

**FACULTY: AUTOMATION AND COMPUTERS**

**DOMAIN / SPECIALIZATION: COMPUTERS AND INFORMATION TECHNOLOGY**

**Year of studies: I**

**Semester: 2**

<b>Titular of subjects:</b> Lecturer Dr. Tudor BÎNZAR					
<b>Collaborators:</b> Assist. Dr. Cătălin VASII					
<b>Number of hours/week/Evaluation/Credits:</b> <i>total number of hours (by semester), credits</i>					
Course	Seminar	Laboratory	Project	Evaluation	Credits
2	2	-	-	Exam	5

**A. COURSE OBJECTIVES:**

Learning of basic linear algebraic and geometrical notions necessary for the understanding and the use of physical phenomena.

**B. COURSE SUBJECTS (28 hours)**

1. **The physical notion of “vector”**
2. **The mathematical model of unlocalized vectors.**
3. **Subsets of vectors (vectorial subspace, generated**
4. **Differential Equations:** Differential equations of the first order. Higher-order linear differential equations. Systems of Differential Equations. (8 h)

**C. APPLICATIONS SUBJECTS (tutorial – 28 hours)**

Following the course, at the seminar are solved concrete problems as applications to the theory.

**D. BIBLIOGRAPHY :**

1. H. Anton, Calculus with Analytic Geometry, John Wiley & Sons, New York, Chisester, Brisbane, Toronto Singapore, 1988;
2. T Bânzaru, T. Bînzar, Integral Calculus and Differential Equations, Theory and Applications, Politehnica Publishers, Timișoara 2005;
3. A. F. Bermant, I. G. Aramanovich, Mathematical Analysis, A Brief Course for Engineering Students, Mir Publishers, Moscow, 1979;
4. S. M. Nikolsky, A Course of Mathematical Analysis, Vol I, II, Mir Publishers, Moscow, 1981;

**E. EVALUATION CRITERIA**

Examination at the end of the semester. The final mark is computed as arithmetical mean of examination mark and seminar mark.

**F. INTERNATIONAL COMPATIBILITY**

École Nationale des Ponts et Chausees, Paris, Budapest University of Technology and Economics - Hungary, Universita Tecnica di Roma-Italy.

**HEAD OF DEPARTMENT,**  
**Conf. Dr. Ioan GOLEȚ**

**COURSE INSTRUCTOR,**  
**Lecturer Dr. Tudor BÎNZAR**