


**LABORATORY FOR TECHNOLOGY PROCESSES OPTIMIZATION****Contact details**

Name	<b>Laboratory for Technology Processes Optimization</b>
Acronym	<b>OPT</b>
Logo	
Site	
Address	103-105 Muncii, Room 401, 400641 Cluj-Napoca, Romania
Faculty Department	<b>Faculty of Machine Building Manufacturing Engineering Department</b>
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**Areas of expertise**

Technology Processes Optimization. Development of algorithms for solving TSP, flowshop scheduling, optimal Nesting, Development of algorithms for linear and nonlinear optimization, without/with constraints. Optimization, numerical methods, programming, operational research

**Team and key skills**

**Prof. Dr. Eng. Mircea Ancău:** is the director of the laboratory; his field of expertise is those of numerical optimization techniques for computer aided design.  
**Assoc. Prof. Dr. Eng. Cristian Caizar:** is permanent member of the laboratory; his field of expertise is computer/manufacturing aided design (CAD/CAM).  
**Assoc. Prof. Dr. Eng. Adrian-Sever Radu:** is permanent member of the laboratory; his field of expertise is Rapid Prototyping and Tooling (RP&T).  
**Assoc. Prof. Dr. Eng. Ancuța Păcurar:** is permanent member of the laboratory; her field of expertise is computer/manufacturing aided design (CAD/CAM).

**Infrastructure**

The laboratory owns particular software such as: CAD programs, MATLAB, VISUAL C++ compiler.

**Development strategy**

- Cooperation with different other research groups inside or outside UTC-N, such as: research platform FABRIN (prof. dr. eng. Petru Berce), TCM department from “Transilvania” University of Braşov (contact person: prof. dr. eng. N.V. Ivan), TCM department from “Politehnica” University of Timișoara (contact person: assoc. prof. eng. A. Tulcan), University of Malta (contact person: dr. Liberato Camilleri, dr. M. Buhagiar); Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University (contact person: prof. dr. eng. Martin Goosey).
- Development of new research subjects, which will be included in future PhD thesis;
- Possible financial resources of research: national and international research contracts, as well as research contracts with local industry.

**Representative projects**

**“Expert Systems for Technology Processes Optimization”** (2007-2010), contract no. 71-133/2007 (PN II - Parteneriate). The research contracts deals with rapid prototyping and tooling optimization. <http://www.esop.utcluj.ro>.  
**“Research concerning the development of new stochastic heuristic algorithms for solving flowshop scheduling problems”** (2008-2011), contract no. 579/2008 (PN II – IDEI). <http://www.ci579.utcluj.ro>

**Significant results**

1. M. Ancău, On Solving Flowshop Scheduling Problems, *Proceedings of the Romanian Academy, Series A*, Vol.13, No.1, 2012, pp.71-79.
2. M. Ancău, Main Aspects Concerning PCB Manufacturing Optimization, *Circuit World* (Emerald), Vol. 38, No.2, 2012, pp.75-82. (<http://dx.doi.org/10.1108/03056121211222291>)
3. M. Ancău, C. Caizar, The Computation of Pareto-optimal Set in Multicriterial Optimization of Rapid Prototyping Processes, *Computers & Industrial Engineering*, (Elsevier), Vol. 58, No.4, 2010, pp.696-708. (DOI: 10.1016/j.cie.2010.01.015).
4. M. Ancău, The processing time optimization of printed circuit board. *Circuit World* (Emerald), Vol. 35, No.3, 2009, pp.21-28. (DOI: 10.1108/03056120910979512).
5. M. Ancău, The optimization of printed circuit board manufacturing by improving the drilling process productivity. *Computers & Industrial Engineering* (Elsevier), Vol. 55, No. 2, 2008, pp.279-294. (DOI: 10.1016/j.cie.2007.12.008).

**The offer addressed to the economic environment**

Research & development in core areas	Development of optimization algorithms.
Research & development in applied fields	Researches concerning the technological processes optimization.
Consulting	Consulting in the area of operational research (industrial application of combinatorial optimization: calculation of minimum path length, optimal nesting, flowshop scheduling etc.).
Training	We offer training in the field of Numerical Optimization Techniques in Computer Aided Design.