UNIVERSITY OF ORADEA

FACULTY OF ENERGY ENGINEERING AND INDUSTRIAL MANAGEMENGT

DEPARTAMENT OF TEXTILES, LEATHER AND INDUSTRIAL MANAGEMENT

„ECO – MANAGEMENT AND ENGINEERING SYSTEMS – IMPACT AND DEVELOPMENT"

Presentation of the Center

1. Name of the Centre

ECO – MANAGEMENT AND ENGINEERING SYSTEMS – IMPACT AND DEVELOPMENT

2. Centre's logo

3. Brief presentation of the Centre

The Scientific Research Centre **"Management and engineering eco systems – impact and devepolment"** was founded in April 2009 and is located in Oradea, B.Şt. Delavrancea Street no.4, 410058. In this centre there are 3 research groups, namely: Eco textiles, Advanced technologies in the textile and leather industry; Management and marketing, which develop CDI activities with fundamental and applicative nature.

4. The mission of the research and development unit, the directions of research, development and innovation:

The scientific research activity carried out in the centre is in a continuous evolution, acting as a dynamic and flexible process, in conjunction with industry requirements at national level and with development objectives at European level.

The purpose of the scientific research Centre **"Management and engineering eco systems – impact and devepolment"** is scientific research (both the fundamental and applicative side) technological development in the field of textile-leather, as well as putting to good use the results obtained through the programs, grants and research-development contracts signed with different beneficiaries:

The necesity of this centre results from the following:

a) National and international importance of the domains approached;
b) Organised capitalization of the results recognized of the research performed by the centre's members

5. The research directions of the centre are: Textiles, Leather, Management and Marketing

6. Valorisation of research, development, innovation results and their degree of recognition

- Capitalization of the results obtained in national and international programs, research-development grants and contracts signed with different clients from the industrial sector.
- Preparation of scientific papers published in ISI /BDI magazines, national and international conferences/symposiums.
- Preparation of specialised books/monographs and university courses in priority domains.
- Organizing research seminars for specialists from industrial, local and regional environment.
- Attracting good young students from the first years in our faculty, who would later become members of the centre and researchers in the domains that the centre is involved in.
- Participation of Master degree and PhD degree students in the research programs.

7. Equipment / Computing systems / Software

A. Equipments

A1. Name: **Martindale device for measuring the resistance to abrasion and peeling effect**
A2. Characteristics, performances: resistance to abrasion and peeling effect
A3. Applications that can be performed: measuring resistance to abrasion and peeling effect
A4. Financing source: Financing from the state budget for equipment and facilities
A5. Estimated value: 13.350 lei
A6. Year of acquisition: 2006

A1. Name: **Dynamometer Tinius Olsen H5KT**
A2. Characteristics, performances: the device is designed to test a large variety of materials (yarns, fabrics, leather) to tensile strees, flexion strength, assemblies resistance (by sewing, heat sealing...)
A3. Applications that can be performed : measuring the resistance to tensile stress, flexion strength, assemblies resistance (by sewing, heat sealing...)
A4. Financing source: Financing from the state budget for equipment and facilities
A5. Estimated value: 70.000 lei
A6. Year of acquisition: 2006

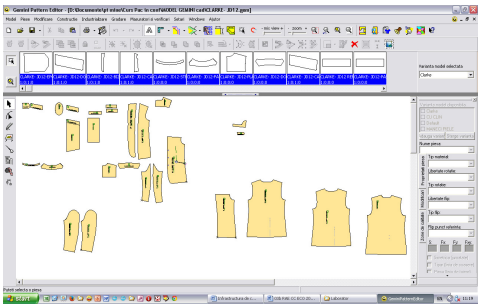
A1. Name: **Electronic Microscope**
A2. Characteristics, performance: the device is designed to test the structure of fibers, yarns and fabrics
A3. Applications that can be performed: testing the structure of fibers, yarns and fabrics
A4. Financing source: Financing from the state budget for equipment and facilities
A5. Estimated value: 17.000 lei
A6. Year of acquisition: 2006

A1. Name: **Conditioning device**
A2. Characteristics, performance: Capacity 120 litres. Conditioning temperature 25-110°C
A3. Applications that can be performed: determining the real humidity of textiles
A4. Financing source: Financing from the state budget for equipment and facilities
A5. Estimated value: 35.000 lei
A6. Year of acquisition: 2006

A1. Name: **Electronic balance XA 220**
A2. Characteristics, performance: capacity 610 grams
A3. Applications that can be performed: determining the mass of wires in order to determine their fineness as well as the fabrics and knits weight
A4. Financing source: Financing from the state budget for equipment and facilities
A5. Estimated value: 5.000 lei
A6. Year of acquisition: 2006

C1. **GEMINI CAD**

Gemini Pattern Editor is the software environment in which the designer's ideas are easily transformed into perfectly built and checked pattern projects. Gifted with unique design functions like reversible folds and darts, automatic & interactive seam allowance creation, automatic notch translation and the all-sizes dimension watcher, Gemini systems allows a quick and perfect pattern design.
Automatic grading and the interactive grading functions allows the previous experience to be stored in grading rules and easily applied to the new products. Gemini Pattern Editor is based on Bezier curves, but can also handle complex polylines or B-Spline Curves. The GPE's interface has a very different approach compared to other CAD applications, because is built to be extremely user friendly, according to the latest software standards. GPE comes as standards with a built-in convertor for Gerber, Assyst and Lectra native files and also for DXF-AAMA import and export.



Gemini Pattern Editor

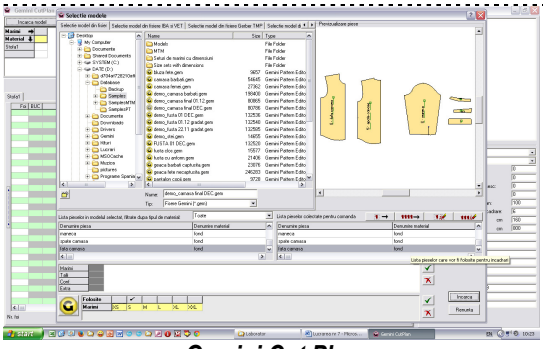
Gemini Cut Plan Gemini Cut Plan is the link between the design room and the cutting room. It provides fast and high quality automatic or interactive optimisation for the spreading and cutting operations
In **Gemini Cut Plan** application, the operator sets the quantity of pieces ordered by the client for each model, size and fabric, and some general settings regarding cutting: the preferred spreading length, the maximum number of sheets in the lay and the fabric's width. The GEMINI CUT PLAN application can automatically generate the most efficient plan for product grouping and distribution, so a minimal number of markers and lays are needed to obtain the ordered quantities. This automatic operation lasts for 1-2 minutes. The user may choose among several automatic strategies of lay planning, as well as manual or semiautomatic methods, so the best results are obtained every time.

Gemini Nest Expert is based on State of the Art technology and algorithms that will provide excelent nesting results in record time. It can run full automatic nesting for one individual marker or work continously for a list of markers, with no human intervention required. The usual time needed for an average marker of 8 m is about 3-5 minutes. The average results in terms of speed and efficiency are considerably higher than manual nesting.

C2. Applications that can be performed:
1. Gemini Pattern Editor
- Quick and accurate pattern design, using basic design tools and advanced geometrical procedures
- Advanced model design and make-up with simulation for darts, folds etc
-Automatic and manual pattern grading
-Pattern checking and verifying measurement table, real time watcher
-Pattern digitising, support for fast access digitising functions, vocal confirmation
-Editor for technical documentation, including support for graphical add-ons
-Direct convertors from Lecta, Gerber, Asyst and also DXF-AAMA format

2. Gemini Cut Plan

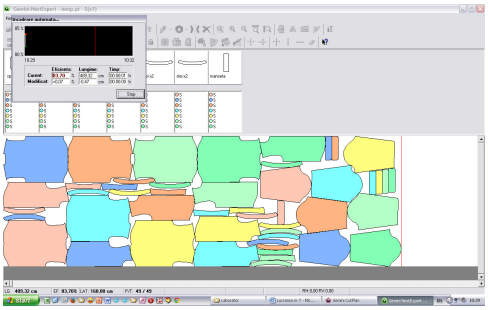
- Automatic and manual lay definition
- Automatic order optimization
- Cutting-Room order report
- Export for plotters, cutters
- Export for other CAD systems



Gemini Cut Plan

3**. Gemini Nest Expert**

- Full automatic, high efficiency marker optimisation
- Special features for markers on fabrics with lines or stripes, tubular or folded fabrics, for fuzing-block definition, for fabric contractiotn
- Over-night marker optimisation for large volume of work
- Fully compatible with all types of plotters and cutting machines from Gerber, Lectra, Assyst and others



Gemini Nest Expert