

1. Fields of competences:

- Composites Products Technology
- Polymeric Products Technology
- Project Management

2. Aim

- Development the field “Engineering and Management of Polymeric and Composites Products” by means of research and technological design of competitive Romanian products;
- Continuous training for specialists at national and international level in a strong concurrent domain;
- Improvement of teaching activities with IMST Faculty students by means of seminars, works-hops, final/ semester projects, laboratories and courses at competitive level;
- Improvement of professional competences of TCM Department personnel combined with performing tools (software/hardware) that would allow collaboration and research activities at competitive level;
- Development research project for new products and technology.



3. Motivation

- The industry of composite materials products, especially composites polymeric products and polymeric materials products is characterized at international level by an annual growth of approximately 5% for the last years. The forecasts indicate a continuation of this trend for at least the next years;
- In Romania, the forecasts confirm these tendencies, Romania being a development market with a great demand for high level specialists;
- In order to be able to sustain this development, there is need also for research and development projects on the field of polymeric and composites products at national and international level;
- From the point of view of activities with students and specialists, there is demand for increased teaching and improvement activities in the field of engineering and management of composites products materials, especially using computer-aided software and testing equipments;
- It is worth mentioning the fact that all the students from this specialization are working in the field at the moment, this lifting demand being by far larger than what the educational system is able to offer at the current moment.
- Composites Products Laboratory is an image of Romania that have succeed .
- Composites Products Laboratory will progress in terms of academic performance image and quality on globalized competitive market.

4. Strategy

Continuous improvement of the design and integrated manufacturing of experimental/industrial polymeric materials and structural polymeric composites products using information technology.

Considering all the aspects involved, LTPC is an institutional member of Romanian Plastics Processor Employers Association- ASPAPLAST. Special attention will be put on:

- enhancing the current teaching laboratory, in both research and design facilities;
- development the laboratory for didactic activities, for research and execution of experimental /prototypes products from polymeric / composites polymeric materials;
- status of national testing laboratory for polymeric composites products by LIPCP – Laboratory of Testing Polymeric Composites Products;
- development research project at national/international level in the field of polymeric and composites products engineering.



5. Current facilities

- AUTODESK -DEL CAM PowerSHAPE & PowerMILL14 software licenses, for integrated design of polymeric & composites products, injection molding; (rooms CB206-CB207)
- CATIA V5 and Moldex 3D software licenses for technological computational mechanics of polymeric & composites products; (rooms CB206-CB207)
- BASF sponsorship and equipments. (room CF009)
- ZWICK testing equipments for tensile, compression and flexure tests through BASF sponsorship. (room CF009)
- INSTRON equipments for testing polymeric and polymeric composite products. (room CF009)
- ENGEL injection molding machine. (room CF014)
- Injection molding tools. (room CF014)
- Computer scientific network, multimedia equipment for courses, seminars and symposiums - (rooms CB206, CB207)

6. Parteners

1. ASPAPLAST
2. BASF
3. RENAULT TECHNOLOGIE ROUMANIE
4. ENGEL
5. ARBURG
6. WITTMANN-BATTENFELD
7. AUTODESK-DEL CAM
8. ACAROM
9. ZWICK
10. MAGIC ENGINEERING
11. ISCAR TOOLS SRL
12. INSTRON
13. INAS – MOLDEX 3D
14. D&D Plastic

7. Opportunities of collaboration

- Integrated design of polymeric products, injection molding, CAD –CAM technology with DELCAM – Power SHAPE & PowerMILL software;
- Computer aided design of advanced materials products using CATIA V5;
- Modelling and simulation injection molding with Moldex 3D software;
- Training and certification occupation "Operator in plastics processing" COR code 814 203
- Design cutting tools for polymeric composites;
- Engineering of sandwich structures for polymeric composites;
- Engineering of composites polymeric biostructures with hemp, flax and wood;
- Certification and testing to impact strength, tensile strength, compression and flexure and of polymeric and polymeric composite products;
- Engineering of multilayer fotoselective polymeric sheets;
- Tool condition monitoring of composite product technology using embedded system;
- Modeling and simulation of nanocomposites products technology;
- Management of research, development and technological transfer for research and development projects.



Head LTPC
Prof.univ.PhD.MSc.Eng.Constantin OPRAN

UNIVERSITY POLITEHNICA OF BUCHAREST



**Composites
Products
Laboratory
LTPC**
Since 2000

**Faculty of Engineering and
Management of Technological Systems
Manufacturing Engineering
Department**

Splaiul Independenței 313,
Building C, Room CB206
Bucharest 060042, România
Tel./Fax: 004 021 4029930;

URL:<http://www.ltpc.pub.ro>;

E-mail: constantin.opran@ltpc.pub.ro