



UNIVERSITY "Ss. CYRIL AND METHODIUS"
FACULTY OF MECHANICAL ENGINEERING

Tempus JEP_41128_2006 (MS-IDM)

Tempus Programme Education and Culture for
CARDS region



Joint European Project

Development of Master's Studies in Industrial Design and Marketing



Academic Partners

EU Partner Institutions:

Grant holder:



Fachhochschule Aachen, Germany

Department of Mechanical Engineering and Mechatronics

Department of Design

Department of Economics

University of Maribor, Slovenia

Faculty of Mechanical Engineering, Department of Industrial design

Beneficiary institution:



University Sts. Kiril and Metodij, Macedonia

Faculty of Mechanical Engineering, Institute of Engineering Design,
Mechanization and Motor Vehicles



Industry partners

Industry partners:

Johnson Controls Inc., automotive interiors, batteries, control systems

Philips, consumer products, electronics

Industry partners from Macedonia:

Axis - animated films production

Buscar - bus and coach factory

Rade Koncar - contactors and electrical equipment

Dinbest - thermo packaging machines

Slavej - orthopedic and prosthetic center

Visabus - special vehicles

Individual expert:

Technical University Sofia, Bulgaria

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Wider objective:

- To contribute towards dissemination of EU standards in Higher Education in the engineering education in Macedonia through development and implementation of modern engineering curriculum
- To implement cotemporary marketing-driven computer-aided industrial design and prototyping techniques and thus increase the competitiveness of local companies to become future equal players on EU market

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Specific objectives:

- To develop the structure and the teaching content of the 2-year postgraduate Master's studies in industrial design and marketing
- To develop the teaching content for the master studies, especially in novel areas, such as industrial design, bionics, digital animation, colour theory, rapid prototyping, direct production, marketing management, consumer behaviour and market research.
- To develop and conduct life-long learning courses, flexible to adapt to new technologies, trends and industry needs, for SME professionals in the field of direct fabrication

1. Development of Study Program

- **Definition of the overall structure and content of the studies**
 - Meeting of the Consortium Board at Fachhochschule Aachen (FHA)
 - Definition of responsibilities of partners in the project
 - Propose structure of the program with list of courses
 - Discussion and review of the program with academic partners and partners from the industry
 - Identification of the topics where training of the staff by EU partners is necessary
- **Development of course content and selection of teaching staff**
 - Selection of teaching staff for courses
 - Propose lists of topics covered within the courses
 - Review the proposed program of courses
 - Acceptance of the complete study program from the PC University
 - Publish and print Program catalogue and promotional materials for the studies



Selected master's courses

Master's courses to be developed in cooperation with EU partners and industry:

C1: Ergonomics and Bionics	FH Aachen, Reichert
C2: Colour Theory and Metrics	UMA, Skrbinek
C3: Digital animation	Axis, Skopje
C4: Model-Making, Rapid Prototyping and Customized Production	FH Aachen, Gebhardt
C5: Consumer Behaviour and Market Research	FH Aachen, Hoepner

Suggestions on selected topics in:

C6: Transportation design	Johnson Controls
C7: Consumer Product Design	Philips

2. Development of Selected Courses

•Preparation of teaching materials

- Preparation of textbooks, presentations, software manuals etc. by PC academics in cooperation with academics from EU universities for 5 selected courses
- Supervision of the teaching material by members of the Consortium and expert
- Approval by the Learning Aids Approval Commission at PC university
- Printing and publishing of textbooks

•Training of selected academics in EU partner institutions

- Agreement for training of selected academics at EU partner institutions at First meeting of the Consortium
- Organization of the training in EU partner institutions

•Updating the library with industrial design literature

- Procurement of literature (e.g. textbooks, software training books, professional magazines) on topics related to the study programme



3. Modernization of equipment

• **Design Lab needs assessment and equipment purchase**

- Selection of virtual prototyping equipment, (graphic workstations and software), physical prototyping equipment (3D plotter/replicator, modelling materials and tools), teaching aids (such as overhead projectors, large format printer)
- Selection of best supplier
- Procurement of equipment

• **Installation of equipment for Design Lab**

- Professional installation of equipment and software
- Attendance of specialised training courses

4. Support for the first year of studies

•Visiting lecturers

- Organisation of visiting lecturing on specific topics provided by EU partners, in the areas of industrial design of vehicle interiors, industrial design of appliances, bionics and ergonomics, modern marketing, rapid prototyping, colour theory and metrics
- Invitation of students, academics and industry partners
- Connected to the meetings of Consortium to avoid travel costs

•Joint projects and evaluation of progress

- Assignment of student projects in cooperation with EU partners
- Evaluation of the student progress in preparation of the project in several steps

•Student mobility

- Exchange students for one month during the first year of studies
 - 5 students from PC university to EU partner universities
 - 5 students from EU partner universities to PC university

5. LLL courses for SME professionals

•Preparation of for LLL courses

- Organization of workshop to select the most relevant topics for courses in the LLL programme based on the topics covered within the Master's programme.
- Preparation of program, materials and case studies
- Training materials for the courses will be prepared.

•Accomplishment of LLL courses and PC university

- Teaching two new LLL courses to the industry by PC academics as part of the LLL program at FME
- Visiting lectures by EU partners

6. Dissemination

- **Organisation of networking events with regional industry**
 - Organization of Programme Advisory Board with members of industry employing industrial designers to monitor and suggest improvements of the curriculum based on market needs
 - Organisation of Annual Programme Advisory Board Meetings.
- **Development of Website and Printed Promotional Materials**
 - Dedicated web-site for Tempus JEP 41128 connecting all partners
 - Web-site for the M.Sc. Studies, students and the life-long learning courses
 - Printed promotional materials in form of posters, brochures for student achievements and CDs will be prepared annually.
- **Promotional events**
 - Preparation and organisation of two Annual Industrial Design Exhibitions

6. Dissemination and Sustainability

- **Organisation of networking events with regional industry**
 - Organization of Programme Advisory Board with members of industry employing industrial designers to monitor and suggest improvements of the curriculum
 - Organisation of Annual Programme Advisory Board Meetings
- **Development of Website and Printed Promotional Materials**
 - Dedicated web-site for Tempus JEP 41128 connecting all partners
 - Web-site for the M.Sc. Studies, students and the life-long learning courses
 - Printed promotional materials in form of posters, brochures for student achievements and CDs will be prepared annually
- **Promotional events**
 - Preparation and organisation of two Annual Industrial Design Exhibitions
- **Creation of sustainable linkages**

Linkages to EU partners and industry, industry in the region and alumni

7. Quality control and monitoring

•Monitoring of the quality of the prepared teaching materials and conducted courses by the curricula commission

- M.Sc. students and life-long learning students evaluation sheets (% of students with affirmative answers on questions for quality of study process, teaching materials and lecturing)
- Teaching materials reviews (positive review on paper, positive reviews on the web page)
- Intern evaluation sheets (% of positive experience from internships in the industry)
- Written self-assessment report

•Inter-project coaching by the individual expert

- Compare to other study programs in the region and other Tempus projects
- Monitor interest for the IDM studies in the region.
- Monitor interest of other institutions in the region for the teaching materials

8. Management of the project

•Organisation of Consortium Board meetings

- First meeting of the Project Consortium at Fachhochschule Aachen
- Second and third meeting at Faculty of Mechanical Engineering in Skopje
- Review and evaluation of progress of project activities at the meetings
- The Consortium Board meetings to be combined with other project activities (such as lectures, trainings, LLL courses, networking events, exhibitions and other work meetings)

•Project activities management

- Prepare reports on progress in the realization of project activities
- Coordination of the activities in the Consortium
- Preparing Progress report and Final report
- Revision of budget and work plan
- Day to day management of the project activities
- Financial management of the project
- Monitoring of project activities to be implemented by FME staff
- Control and monitoring of project implementation