The Project: „The Development of Education for the Viability of Labour Market Through the Innovative Vectors: MECHATRONICS – INTEGRONICS (M&I)” – Contributions to the Development of Insertions and Assimilations Towards New Modern and Integrative Occupation Fields on The Labour Market

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Abstract

The project: „The Development of Education for the viability of labour market through the innovative vectors: MECHATRONICS – INTEGRONICS (M&I)” develops a complex program of activities and objectives, to promote the new high-tech advanced field, Mechatronics-Integronics, on the internal labour market, especially among students enrolled in the national high-school education system and university system.

Keywords
Mechatronics, integronics, integration, labour market.

Project presentation

The project: „The Development of Education for the viability of labour market through the innovative vectors: MECHATRONICS – INTEGRONICS (M&I)”, financed by the Sector Operational Programme Human Resources Development 2007÷2013, responds to the aims of the Key Aria of Intervention 2.1 “The transition from school to work” from the priority axis 2, “Co-relating lifelong learning with the labour market”. Call for project proposal no. 90 – Learn a trade

Developing the POSDRU general objectives, the project aims at accomplishing the following main specific objectives:

- promoting innovative actions on the transition from school to active life;
- improving the framework, methodologies and learning conditions for the industrial practice;
- development and provision of modern services, appropriate and aligned with the guidance, counselling and tutorship aimed to support the transition from school to work;
- training, developing and supporting partnerships between universities and economic agents with the view to ensure professional specializations and fast absorption into the labour market;
- promoting equality without discrimination and limitations;
- multi-regional promoting of occupational programmes, etc.

The scientific objectives of the project are focused on promoting an advanced high-tech field, with recognition and appreciation expanded internationally and in Europe: MECHATRONICS & INTEGRONICS.

The opportunity and necessity of approaches of this peak area are supported by reasoned arguments and socio-economic arguments, of which can be listed:

Mechatronics is an integrative science that gives a broad perspective on the scientific and technological contribution to the development of policy objectives and programs arising from national strategies, developed for sustainable economic growth and aligned to those promoted at Community level.

The innovative vector - MECHATRONICS develops a complex engineering structure, the synergistic combination and integration of precision mechanics, electronics, electric and computer science engineering / micro-engineering, existing in an architectural co-relation with the material engineering / micro-engineering, systems / bio-systems engineering, etc. presented synergistically in figure 1.

The second innovative vector INTEGRONICS, develops the mechatronic vision into an engineering structure completely integronized and in an integrated and synergistic system design, bringing together construction and operational solutions, similar to the human body, behaviour and expression of intellectual, physical, moral, social and human states, etc., (presented as an icon in Figure 2).

Integronics involves the integration with other disciplines, the integration of scientific fields with other scientific fields, special and dedicated hardware integration, software integration flexible, universal modelling language / specific, etc., systems integration, integration of scientific and technical knowledge and economic integration od design CAD / CAM.
The approaches of the Project are dedicated to a **TARGET GROUP** comprising the following structure:

- 160 students enrolled in the national university system, in final years of study or MA students;
- 400 students enrolled in the national technological university education;
- 21 people from SMEs as tutors / mentors;

The activities of the Project, both direct and related, are unfolded by teams of high training experts with complex experience, based on partnership and meeting in a **consortium** with the following structure:

- Beneficiary: **INCDMTM Bucharest**
- partners:
Currently there are ongoing activities / actions planned for the first year of project implementation, thus the achievements of remarkable achievements can be listed:

- Structuring of a data bank comprising members of the target groups:
  - 382 pupils from the 11th and 12th grade, specializing in mechatronics from the following high-schools: „Mecanică Fină” (111), „Electronică Industrială” (68), „Sf. Pantelimon” (43) and „Dragomir Hurmuzescu” (61) in Bucharest;
  - 210 students and PhD students in the last years of study from „Politehnica” University of Bucharest, „Valahia” University of Targoviste and „Transilvania” University in Braşov.
  - „Valahia” University of Targoviste has realized visits to technical high-schools from locality (Nicolae Cioranescu High School, Voievodul Mircea High School, Constantin Brâncoveanu High School, Spiru Haret High School), and students from the Faculty of Materials Science, Robotics and Mechatronics and Electrical Engineering Department.
  - Training, in specialized sessions, of 15 tutors from 8 businesses in the field, from Bucharest (INOE 2000-IHP, INFOSIT SA, ICPE-CA, SC EAST ELECTRIA SRL) and Targoviste (MECANICA ROTES, PENTA DEVELOPMENT, ELDEMIR, BIT INVEST, UPET SA şi ARC);

![Fig.3](image1.jpg)

![Fig.3](image2.jpg)

![Fig.3](image3.jpg)

The preliminary results of the project were given both quantifiable effects as well as indicators based on long-term induced, non-quantifiable effects.

- The preliminary global indicators are summarized in table 1 (output indicators) and 2 (result indicators).

<table>
<thead>
<tr>
<th>ID</th>
<th>Indicators [1 output]</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>265</td>
<td>Number of students supported in the transition from school to active life</td>
<td>160</td>
</tr>
<tr>
<td>266</td>
<td>Number of beneficiaries of career counselling services</td>
<td>400</td>
</tr>
<tr>
<td>268</td>
<td>Number of participants in training - the transition from school to active life</td>
<td>21</td>
</tr>
<tr>
<td>270</td>
<td>Number of studies, surveys, reports, strategies - the transition from school to active life</td>
<td>15</td>
</tr>
<tr>
<td>271</td>
<td>Number of Partnerships for exchanging experiences and best practices, the transition from school to active life</td>
<td>20</td>
</tr>
<tr>
<td>ID</td>
<td>Indicators [2 result]</td>
<td>Value</td>
</tr>
<tr>
<td>-----</td>
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</tr>
<tr>
<td>267</td>
<td>Share of pupils / students supported in the transition from school to work who have obtained a job or actively participated in subsequent courses</td>
<td>97</td>
</tr>
<tr>
<td>272</td>
<td>Number of people who received counselling / guidance and found a job - the transition from school to work</td>
<td>100</td>
</tr>
<tr>
<td>273</td>
<td>Persons who have received counselling / guidance and continued their studies - the transition from school to work</td>
<td>350</td>
</tr>
</tbody>
</table>

**Table 3 – Achieved indicators**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Forecast Value</th>
<th>Realised value of the end of the first year</th>
</tr>
</thead>
<tbody>
<tr>
<td>[265] Number of students supported in the transition from school to active life</td>
<td>160</td>
<td>210</td>
</tr>
<tr>
<td>[266] Number of beneficiaries of career counselling services</td>
<td>400</td>
<td>382</td>
</tr>
<tr>
<td>[268] Number of participants in training - the transition from school to active life</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>[270] Number of studies, surveys, reports, strategies - the transition from school to active life</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>[271] Number of Partnerships for exchanging experiences and best practices, the transition from school to active life</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>[267] Share of pupils / students supported in the transition from school to work who have obtained a job or actively participated in subsequent courses</td>
<td>97%</td>
<td>13.47%</td>
</tr>
<tr>
<td>[272] Number of people who received counselling / guidance and found a job - the transition from school to work</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>[273] Persons who have received counselling / guidance and continued their studies - the transition from school to work</td>
<td>350</td>
<td>0</td>
</tr>
</tbody>
</table>

As the main positive effects resulting from long-term project, there are:
* developing, promoting and developing national and transnational programs aligned and integrated occupational community educational aspirations;
* Conduct a high occupational level, developed on areas of national economy perspective;
* development of innovative enabling assimilation and inserts occupational niches for new, modern labor market;
* providing a trend of market integration chances national / international work;
* database structured targets (target groups) in the regions economic development;
* developing programs and documentation for counseling / coaching and training of trainers specialized body unions and mentors;
* organizing training sessions by graduate students and industrial practice, based on programs based, modern and innovative structured to facilitate development of thesis and dissertations.

**Conclusions**

The objectives, structure and action programs, project generates important and valuable contributions to the development of occupational programs able to provide superior capabilities for the absorption of graduates into the labor market, develop occupational niches, giving new values of modern integrated areas: Mechatronics and Integronics.

**References**

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