



PROJECT ABSTRACT

Centre for Foundry Technology – SIMET

KK.01.1.1.02.0020

Project holder: University of Zagreb Faculty of Metallurgy

Partner: Sisak – Moslavina County

Implementation period: 1.2.2019. - 1.2.2022.

Total value: 40.401.494,36 HRK

EU co-financing percentage: 100%

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General Objective of the Project: Strengthening the capacities for research, development and innovation through investing in improving of existing research infrastructure at the Faculty of Metallurgy in Sisak: adaptation, equipping and establishment of the Centre for Foundry Technology – SIMET. The aim of those activities is to create preconditions for improvement of quality, scope and relevance of research activities, strengthening the connection between the scientific-research sector and the economy, performing organizational reform of the Faculty and enabling the further transfer of knowledge and skills.

Faculty of Metallurgy as a constituent of the University of Zagreb is the only higher education institution in Croatia which performs higher education in the field of metallurgy and industrial ecology, and organizes lifelong education and training programs through organized conferences, seminars, workshops and lectures provides support to metallurgical, shipbuilding and foundry industries. Faculty of Metallurgy based its activity on high academic and ethical values and its social contribution and responsibility, aware of its strengths and weaknesses and persistent in coping with the difficulties. The Faculty is the main place of scientific-research and publishing activities in the field of technical sciences - the field of metallurgy, and provides scientific and professional support to the metallurgical, shipbuilding and foundry industries in the Republic of Croatia, which is particularly significant after the closure of the appropriate industrial institutes.

By the establishing of the Centre for Foundry Technology, the Faculty is aiming to strengthen the capacities for research, development and innovation (RDI), to improve competencies of teaching staff and students and to position the Faculty and metallurgical sector in general in terms of recognition and activation of its RDI potential. The purpose of the Centre's establishment is networking of relevant stakeholders as a target group and enabling of the knowledge and skills transfer in the function of materials and technologies development towards potential beneficiaries (primary teaching staff and students) as well towards beneficiaries from the industrial sector through designing of innovative materials according to market requirements and forming the final product by specific computer aided technologies application (CAD/CAM). The other aim is product and process development and optimisation. The third goal is lifelong learning intended to students and economy experts etc.

The implementation of the project will result in adaptation, equipping and establishment of the Centre for Foundry Technology - SIMET within the Faculty of Metallurgy. For the purpose of connecting entrepreneurs, scientific-research institutions and public sector, the scientific-research equipment

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acquired through this project will serve to better transfer of knowledge and research results, improved networking of entrepreneurs and production processes, therefore reducing the production costs. In order to achieve the results of the project, the implementation will include the following activities:

1. Adaptation and adjustment of available laboratories for the Centre for Foundry Technology - SIMET
2. Equipping of the Centre for Foundry Technology - SIMET with the instruments and scientific-research equipment
3. Organizational reform of the institution
4. Implementation of horizontal measures

During the preparation of the project proposal Centre for Foundry Technology - SIMET problems such as insufficient level of innovation due to the lack of adequate equipment and interdisciplinary approach and unregulated scientific research interaction (individual recognition, inability to fund projects) have been identified with other stakeholders (foreign scientific-research institutions, economic stakeholders). Indirectly, strengthening of the scientific-research institution and its activities can positively influence the transfer of knowledge and technology to all stakeholders. Contemporary casting production is unthinkable without the implementation of new strategies and concepts. In the casting industry, the most notable concepts are "Near net shape castings" - castings with almost finite dimensions, and "Right for the first time" - the concept of qualitative management in the sense of preventing errors suspected by detection, elimination and repairing. One of the main goals of the (above) mentioned concepts is the high usability of the material, with a smaller number of applied operations in the forming process. The Centre's validity will be reflected in targeted research into material development and technology transfer to partners from the real sector from idea to finished product. The activities would focus in three main directions:

1. Design of innovative materials according to specific market requirements, i.e. manufacturers, and characterization of the synthesized or innovated material according to specific improved and / or demanding final product properties
2. Product development using sophisticated CAD / CAE technology (CAD-Computer Aided Design, CAE - Computer Aided Engineering), elaboration of casting and solidification process and prediction of potential errors. Product development with rapid prototyping and rapid tooling, emphasis is placed on innovations and optimization of processes and production processes.
3. Lifelong learning - The basis of LLL is to bring closer to students, experts from the economy and any other interested stakeholders the sophisticated equipment, research and knowledge. This will enable the development of engineering skills, innovativeness and inventiveness in project task solving and thereby launching globally competent experts in the metal production industry and metallurgical companies.

In addition to continuous student education, the Centre for Foundry Technology - SIMET will be the main organizer of the International Foundrymen Conference (<http://www.simet.unizg.hr/~foundry/>), and other forms of certified lifelong learning through the Scientific - Professional Seminars (<https://www.simet.unizg.hr/hr/popularizacija-znanosti/seminari>), Lectures - workshops - forums with a targeted "state of the art" topics (<http://www.simet.unizg.hr/popularizacija-notznosti/predavanja-tribine>).

More information about the Project is available at: <http://castingpoint.simet.hr/>