



## Proposal for cooperation from Cherepovets State University (Russian Federation) (Erasmus+ Call for proposals 2017, Capacity Building in the Field of Higher Education applications)

### Proposed project

The implementation of the modular training principle within the framework of CDIO standards for a practice - oriented engineering education programs.

**Areas of implementation:** Curriculum development

**Project duration:** 24 months

**The goal** of the project is the development of practice-oriented engineering education programs according to CDIO standards, including the modular training principle, multi-functional training for specialists, the implementation of interdisciplinary team projects, designed by the students and identifying of talented young people.

We offer a project designed to develop practice-oriented engineering education programs, consisting of 3 modules:

- General cultural module, including social engineering, performed by students teams.
- General professional module, establishing a framework of engineering activity
- Professional module that allows students to develop applied engineering skills.

**A special feature** of the developed educational programs is the transition from a disciplinary to interdisciplinary course design, which will let to carry out team integrated projects (for 3-5 students), contributing to a complete competencies assimilation with a focus on a practice-oriented training.

Each training module ends with the presentation of interdisciplinary course project, designed by the students team.

Curriculum includes work experience internships at the actual industrial manufacturing and engineering organizations with the possibility of traineeships and obtaining working professions (qualifications) during the student's training period.

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### **Proposed subject areas for the project:**

Mechanics, Technological Machinery, Electric Power Industry, Metallurgy, Heat Power Engineering, Civil Engineering, Chemical Technology

### **Multi-functional approach**

Engineering education programs, developed in collaboration, are unique because students are provided with an opportunity to obtain additional qualifications during their undergraduate study period.

Following the results of the implementation we will be able to receive various combinations of competencies for future engineering professionals.

### **The implementation of innovative student projects**

The implementation of educational programs goes in the framework of the students "end-to-end" team commercially-viable innovative projects from the first to the fourth course of baccalaureate. This feature aims to identify intellectually gifted students, the creation of student research teams, increasing motivation and the level of student scientific and technical activity at the university.

### **Credit Mobility**

Project goals:

- mobility level increase and development of international relations between students and professors from engineering universities;
- research spectrum broadening and cooperation for the solution of scientific and technical problems;
- searching for best practices for the training of specialists for the metallurgical industry.

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Cherepovets State University in cooperation with PAO "Severstal" offers the short-term mobility project in the following areas:

- joint research on request of PAO "Severstal";
- practical training and internships in Cherepovets State University and in the research departments of PAO "Severstal";
- organization and holding of joint seminars and conferences in the field of metallurgical technologies;
- research internships for professors;
- joint development of copyright educational courses;
- implementation of curriculum for engineering education in the area of metallurgical and steel industries with the involvement of professors;
- standardization of training engineers for the metallurgical industry.

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# Reforming engineering education in ChSU

Trajectory of education with the implementation of the innovative project

Trajectory of education with interdisciplinary course design

Program 1

Program n

