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Varietas delectat...

Complexity is the new normality

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EBCC MODEL: RAPID PROTOTYPING ROLE FOR ACQUIRING PRACTICAL SKILLS IN PRODUCT DESIGN ENGINEERING

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Topics: New Complexity Quest in Engineering Sciences, New Notions of Interdisciplinarity in Engineering Education

Keywords: rapid prototyping, real life cases, engineering skills, community, product design

The workshop is organized in the framework of the Erasmus+ strategic partnership project No 2017-1-LV01-KA203-035426 “Education, Business and Community Cooperation Model for a Creative European Engineering Education” (EBCC Model). There are five partners in this project: Riga Technical University, Latvia (RTU), Institut Supérieur de Mécanique de Paris, France (SUPMECA), Aristotle University of Thessaloniki, Greece (AUTH), Établissement public territorial Plaine Commune, France (PLAINE COMMUNE), and the European Society for Engineering Education, Belgium (SEFI). The workshop is facilitated by 8 experienced faculty and administrative staff members from these organizations. They have experience in development and implementation of the curriculum for project-based engineering education.

The objective of the workshop to share knowledge and create a better understanding for educational efforts involving rapid prototyping as a modern learning tool in

universities that develops students' capability to design and boosts their interest, motivation, creativity, decision making, communication and team working.

The workshop topics covers the main principles that govern the rapid prototyping technologies, design for manufacturing, and best practices. Participants will discuss teaching activities that combine theory and practice in a context of real engineering application challenges, available 3D modelling computer-aided design software and students' expectations.

Agenda

5 min.: Introduction. Moderated by RTU.

10 min.: The presentation the guidelines for using rapid prototyping to acquire practical skills in product design engineering. Moderated by AUTH.

20 min.: Round table discussion: Fostering students' active learning through the integration of rapid prototype into educational process provides (curriculum issues, topic selection, available infrastructure, teacher roles, teamwork, result evaluation a.o.). Moderated by AUTH.

10 min.: The presentation and discussions on skills linked to modelling, conception and rapid prototyping acquired during project-based learning and guidelines for a better integration of these skills in the curriculum. Moderated by SUPMECA.

10 min.: The demonstration of practical examples (cases) for application of rapid prototyping in engineering curriculum that allows students to acquire knowledge and skills creating real live models using different design and calculation tools. Moderated by AUTH.

5 min.: Creation of working groups of 5-7 persons and case study description. Moderated by AUTH.

20 min.: Case study where participants will create their own version for implementation of rapid prototyping into engineering education by selecting the most appropriate study course(s), study level, software, learning methods and evaluation of results. Moderated by AUTH and assisted by RTU, SUPMECA and PLAINE COMMUNE.

10 min.: Presentation of the case study results by working groups. Feedback and the final remarks. Moderated by RTU.

The participants will learn an integrated approach to the creation of study curriculum that includes project-oriented training on the basis of business problem solving stipulated by the regional government in combination with real solution prototyping. Integration of rapid prototype into educational process provides valuable feedback on both student acquired skills and the effectiveness of instruction.

The workshop has length 90 minutes and includes keynote presentations, round table discussions and case study exercise in working groups of 5-7 persons. They will experience to work in small teams to create their examples of application of rapid prototyping in the educational process by selecting the most appropriate study course, study level, software, learning methods and evaluation of results. The participants will present the outcomes of the own workgroup and evaluate the results of others. There are expected 20 - 30 participants in total. Participants will receive a workshop booklet containing all presentations and reference materials.