

**(RE)DESIGNING THE DESIGN EDUCATION IN A KNOWLEDGE-BASED ECONOMY**Fain N., Moes C. C. M., van Doorn E., Duhovnik J. - *University of Ljubljana (SVN)*

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Several global trends in new product development, such as increased global competition, flux of boundaries between institutions and intensiveness of knowledge in the management of consumers and their needs, have changed the traditional work of industrial design engineers, so that they must now be closely involved in the entire product development process, and interact and intensively communicate with other disciplines. Their competences need to be adjusted and updated. This should start with the design education. In the presented paper we propose an approach in design education, that covers the emerging trends in NPD and educates students in such a manner that their transition from study to practice is carried out effectively and smoothly.

**COMPETENCE DEVELOPMENT IN AN INTERNATIONAL PRODUCT DESIGN COURSE**Kovacevic A. - *City University London (GBR)*

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The European Global Product Realisation course brings innovation to engineering education by adopting a holistic approach to the development of student competences. The students from five European countries and the UK based company were involved in the project forming an academic virtual enterprise. The main aspects of such an international project and its impact on educational goals at City University to meet UK industrial requirements was evaluated. The paper outlines how undergraduate students from different backgrounds combined theory and practice to make a product that brought a new approach to industry. The use of e-learning and video conferencing systems is discussed and measures for further improvements are proposed.

**PERMANENT PROFESSIONAL EDUCATION FOR INTEGRAL DESIGN COLLABORATION**Savanovic P., Zeiler W. - *Technical University Eindhoven (NLD)*

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Multi disciplinary building design aims at integrating all aspects from the different disciplines involved. To support this complex process an Integral Building Design method is developed based on the combination of a prescriptive approach, Methodical Design, and a descriptive approach, Reflective practice: Integral Design with a functional structuring tool Morphological Overviews to structure the communication between the design team members. This forms a basis for reflection on the design results by the design team members. This method was tested in workshops for professionals in which nearly 90 professionals participated from the Royal Institute of Dutch Architects and the Dutch Association of Consulting Engineers.

**TEACHING AN INTEGRATED NEW PRODUCT DEVELOPMENT SEMINAR ON COGNITIVE PRODUCTS**Shea K., Engelhard M., Helms B., Merz M. - *Technical University Munich (DEU)*

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This paper describes a new interdisciplinary, project-based seminar at TU Munich, where mechanical engineering, electrical engineering and computer science students create cognitive consumer products. The main goal is educational and aims to provide students with experience in artificial cognitive systems and related technology, conceiving new products, prototyping and working in multidisciplinary teams. Due to the high technology and multi-domain nature of cognitive products, project-focused, technical lectures and a software and hardware prototyping toolkit are integrated into a new product development process that is supported by process and technical coaches. Results from running the seminar two semesters are presented and discussed.

**ACHIEVING COST-EFFECTIVE DESIGN EDUCATION: HIGHEST QUALITY GRADUATES FOR LEAST RESOURCES AND COST**Cowdroy R., Williams A. - *University of Newcastle (AUS)*

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Design education takes many forms across the range of design disciplines but principally design education to mean development of ability to design. The purpose of this paper is to show how results of recent empirical research into the mental processes of various types of creativity apply to design education. The paper shows how the various combinations of creative thinking processes are directly relevant to all design, then goes on to show how these creative thinking processes can be assessed transparently and can make innovative and significant contributions to increasing design ability in students and graduates, and to meeting educational objectives of best practice, and institutional objectives of accountability and efficiency.