Design Education & Human Technology Relations

Editors: Erik Bohemia, Arthur Eger, Wouter Eggink, Ahmed Kovacevic, Brian Parkinson and Wessel Wits
Design Education &
Human Technology Relations

Erik Bohemia
Loughborough University, Design Education Society
Special Interest Group, Design Society

Arthur Eger
University of Twente

Wouter Eggink
University of Twente

Ahmed Kovacevic
City University, Design Education Society Special Interest Group,
Design Society

Brian Parkinson
Institution of Engineering Designers

Wessel Wits
University of Twente
# Table of Contents

xvii  **Foreword**

xxiii  **Design Society**

xxiv  **Institution of Engineering Designers**

## Chapter 1 – Design Education Methods

2  **The Role of Learning- and Presentation- Portfolios in Design Educations**  
*Bente Dahl Thomsen and Nis Ovesen*

8  **Design Pedagogy and the Threshold of Uncertainty**  
*Micahel John Tovey and Jane Osmond*

14  **Explore, Adapt and Reflect: Educating Design Students in Translating Design Supporting Techniques across Domains**  
*Jos Thalen, Mascha van der Voort and Julia Garde*

20  **From Gestalt to Experiencing – 2D/3D Design Fundamentals Education in Different Contexts**  
*Christian Wölfel and Katja Thoring*

26  **Pedagogy: Leading Technology**  
*Phillipa Marsh and Les Arthur*

30  **Eco-Car: A Perfect Vehicle for Technical Design Teaching?**  
*Lyndon Buck, Christian McLening and Jonathan Burgess*

36  **Teaching Cross-Disciplinary Collaboration in Design Projects with Engineering and Medical Students**  
*Stephan Fox, Vartan Kurtcuoglu and Mirko Meboldt*

42  **Media and Representations in Product Design Education**  
*Maral Babapour, Viktor Hjort af Ornäs, Oskar Rexfelt and Ulrike Rahe*
The Research Paper as an Object of Communication in Industrial Design Educations
Bente Dahl Thomsen and Lars Botin

Roadmap and Toolbox for the Ideation Stage of the Development Process of Product Service Systems
Ivo Dewit, Dries De Roeck and Chris Baelus

Corporate Co-operation in Design Education in Light of Situated Learning
Tore Gulden and Bente Skjelbred

Chapter 2 – Using Technology in Teaching

Introducing the LogCal: Template-Based Documentation Support for Educational Design Thinking Projects
Axel Menning, Thomas Beyhl, Holger Giese, Ulrich Weinberg and Claudia Nicolai

eLearning and eMaking in Product Design Education
Jennifer Loy

Technology and Interaction in the Realm of Social Design: Role, Influence and Value
Inês Veiga and Rita Almendra

Where's my Robot? Integrating Human Technology Relations in the Design Curriculum
Wouter Eggink

Introduction of Issues Regarding People with Special Needs to Design Education
Pavlina Georgieva Zabunova and Yordanka Tsvetanova

Raising Designers' Awareness of User Experience by Mobile Eye Tracking Records
Moritz Mussgnug, Quentin Lohmeyer and Mirko Meboldt

Reflection in Design Education Using Visual Technology
Einar Stoltenberg and Vibeke Sjøvoll

Anthropometrics 2.0: Enrichment of Classical Anthropometry through Multidisciplinary Collaboration
Stijn Verwulgen, Daniel Lacko, Guido De Bruyne, Femke Danckaers, Naomi Christis, Jan Sijbers and Toon Huysmans

EPDE 2014
Chapter 3 – Social Aspects of Design Education

130 Political Action and Implicit Knowledge in Engineering Education: A Case Study
Sergio Bromberg and Viviana Polo

135 A Participative and Socially Interactive Approach to the Teaching-Learning Process in Industrial Design
Juan Carlos Briede Westermeyer, Marcela Mora, Jorge Cartes and Marcela Pérez

141 A Working Model to increase Awareness of Social Impact
Jantine Bouma

147 An Integrated Social Interative Tool to Improve Knowledge Sharing among Students
Way Kiat Bong, Xiangyang Yang, Yang Yang, Anqi Zhao and Weiqin Chen

153 "Should I Patent This"?
Bryan Howell

159 Public Bicycles: How the Concept of Human-Oriented ‘Mobility Sharing’ Technology can Influence Travel Behaviour Norms and Reshape Design Education
Alexandros Nikitas, Pontus Wallgren and Ulrike Rahe

Chapter 4 – Learning Spaces

166 Supporting the Early Stages of the Product Design Process: Using an Integrated Collaborative Environment
Julian Malins, Aggelos Liapis, Julia Kantorovitch, Panos Markopoulos, Richard Laing, Alexandros Didaskalou, Karin Coninx and Fiona Maciver
Chapter 5 – Design Education and Design Cultures

226 Why Designers and Philosophers Should Meet in School
Liesbeth Stam and Wouter Eggink

232 Cultural Study in Design: In Search of a Meaningful Approach
Annemiek van Boeijen
Chapter 6 – Case Studies

276 Curious Directions for Product Designers: How Technology is Affecting Medical Design Practice
*Jennifer Loy*

282 Increasing Police Trustworthiness through a User-Oriented Design Approach
*Bente Moen, Jarle Fosse and Arild Berg*

288 Workshop “Product Design for Elderly” in China: Design Education and Experience
*Lau Langeveld*

294 Muses in Design: A Comparison of Inspiration Techniques in Product Form Giving Education
*Maaike Mulder-Nijkamp and Jan Corremans*
Chapter 7 – Design Education in Business and Industry

302 Designers in Design Thinking
Erika Braun, Jessica Moreland, Emma Sanders and Carolina Gill

308 HCD in a Quasi-Market: Lessons from a Design Project in Kebri Beyah Refugee Camp, Ethiopia
Kathinka Hasselknippe, Gudrun Reikvam and Brita Fladvad Nielsen

314 Collaborative Innovation: A Study of Creative Teamwork in Offshore Industry and in Design Education
Nenad Pavel and Arild Berg

320 Computer Aided Cost Estimating
Huub Ehlhardt

Chapter 8 – Collaboration

328 Designing Home Decor Products for Umbra, within the International Collaboration format as an Academic Experience for Undergraduate Students
Alejandra María Velásquez Posada and Luis Fernando Patiño Santa

334 Virtual Product Engineering Network crosses Industry and University Chasm
Michael Bitzer, Sebastian Handschuh and Martin Langlotz

340 Facilitating Transition to Team Based Design Education
Christian Tollestrup

346 Flyable – Design of Fuselage for Two Seater Aircraft to be Flown by a Disabled Pilot: Learning Outcomes from Different Approaches to Lectures
Katherine Frost, Sara Linda, Ahmed Kovacevic and Sham Rane

Chapter 9 – Design Education in Practice

354 From Learning to Experiencing Principles of Engineering Design at the TUM
Ioanna Michailidou, Michael Roth and Udo Lindemann
Waste as a Starting Point - How to Educate Design Students to Become Active Agents in Closing Material Loops
Isabel Ordoñez, Oskar Rexfelt and Ulrike Rahe

New Competencies Required in Future Development of Design Education
Nicola Crea

1 Shade of Grey: Simplify to Excel in Sketching for Industrial Design Engineers
John Daniel Öhrling and Bengt Holmqvist

Teaching Design Engineering in an Interdisciplinary Programme
Wessel Wits, Jasper Homminga, Maaike Endedijk, Klaasjan Visscher, Leonie Krab-Hüsken, Frank van den Berg and Pascal Wilhelm

Social Cohesion Design, A Course for Designing Community Integrated Product Systems
Clemes de Lange, Tjamme Wiegens and Jors Vergeest

Experience, Design, A Student Pop-Up Shop
Andrew Forkes and Barney Townsend

Development of the Material Selection Practice in the Design Education – A Study Exploring Articulation of Material Requirements
Karen Marie Hasling and Torben Lenau

Flat Design vs. Skeuomorphism – Effects on Learnability and Image Attributions in Digital Product Interfaces
David Oswald and Steffen Kolb

Supporting the STEM Transition between School and University
Avril Thomson, Phillip Sayer, Andrew McLaren and Derek Little

Enhancing Student Motivation – “Raise the Bar”
Anders Håkansson and Peter Törlind

A Series of Student Design Projects for Improving and Modernizing Safety Helmets
Johannes de Boer, Margot Stilma, Karin van Beurden and Wouter Teeuw
Insects Au Gratin - An Investigation into the Experiences of Developing a 3D Printer that uses Insect Protein Based Flour as a Building Medium for the Production of Sustainable Food
*Susana Soares and Andrew Forkes*

The Capability Approach: Theoretical Discussion in Light of a Design Project
*Julie Grande and Brita Fladvad Nielsen*

Representation and Evaluation of Product Design in Research Assessment Exercises: A Case Study of the UK Ref 2014
*Carmel Maher, Mark Hadfield, Maggie Hutchings and Adam de Eyto*

New Design is Bigger and Harder - Design Mastery in a Changing World
*Mark Bailey, Mersha Aftab and Trevor Duncan*

**Chapter 10 – Ethics and Emotions**

Positive Ethics in Design Education
*Marina Henrieke Sonneveld*

Can Folding a Product Foster Emotional Attachment?
*David Morgan*

Olfactory Considerations in Design, A New Dimension to Product Experience
*Brecht Daams*

Re-Assessment of the Crafted Means of Production in Industrial Design
*Jorge Andres Caro del Castillo Hernandez and Arild Berg*

Promoting Environmental Sustainability by Fostering a Culture of Material Ethics
*Shannon Chance and Pearl O'Rourke*

Emotion Eliciting in Affective Design
*Yoke-Chin Lai*

Ethics – Research, Engineering Design …They’re All the Same Aren’t They?
*Tania Humphries-Smith, Gordon Blount and John Powell*
Chapter 11 – International Collaboration

492 When Global Design Meets European Global Product Realisation-Design Techniques and Challenges
Resham Advani, Katherine Frost, Elton Gwashavanhu, Sara Linda, Sham Rane, Matthew Read, Mohamoud Samatar, Sultan Shafiq and Mohammed Sharif

498 An Assessment of Internationalization Impact on Engineering Education Quality Scores: A Brazilian Case Study
Anderson Edilson Presoto, Isabela Mantovani Fontana and Roberta Souza

504 Container Challenge – Protyping Distributed Collaboration
Joona Kurikka and Tuuli Maria Utriainen

510 Establishing and Leveraging Networks in Design Education Innovation Projects
Nicholas Spencer, Roderick Walden, Benny Leong, Mark Bailey and Mersha Aftab

516 Homecare Future Scenario Development by Students in a Multidisciplinary Setting
Margot Stilma, Fenne Verhoeven and Karin van Beurden

Chapter 12 – Using Technical Tools in Design

524 Educating Designers from Generation Y – Challenges and Alternatives
Miroslava Petrova

530 A New Consumerism: The Influence of Social Technologies on Product Design
Ian de Vere

537 RP vs Workshop: How Modelling Methods affect Early Design Development
Gary Underwood

543 Integrative Product Creation – Results from a New Course in a Learning Factory
Sinan Ugurlu and Detlef Gerhard
Chapter 13 – Creativity

562 How to Educate for Creativity in Creative Technology?  
Angelika Mader and Edwin Dertien

568 A Design Process for Creative Technology  
Angelika Mader and Wouter Eggink

574 Using Design Heuristics in Idea Generation: Does it Take Expertise to Benefit?  
Markus Voss, Thorsten Sauer and Hulusi Bozkurt

580 Facilitating Students’ Design Sensitivity and Creativity in Design Detailing and Materialisation through Physical Models and Prototypes  
Siti Salwa Isa, Andre Liem and Bjørn Baggerud

586 3D Printing: Improving Creativity and Digital-to-Physical Relationships in CAD Teaching  
Jeff Barrie

592 Observation: Listen with Our Eyes and Look with Our Ears  
Amos Scully

Chapter 14 – Curricula

600 Metaphors in Design Curricula  
Viktor Hiort af Ornäs, Martina Keitsch and Kjersti Schulte

606 Integrating Different User Involvement Methods in Design Curriculum  
Martina Maria Keitsch

612 The Missing Link: Co-Creation Through Design Engineering Projects  
Nigel Garland and Zulfiqar Khan
Chapter 15 – Reflection on Teaching

632 Sustainable Design Technology: A Case Study of a Master Student’s Lamp Project
Arild Berg, Einar Stoltenberg and Janne Reitan

638 Open Design as an Education Tool in Architectural Studies
Alexandros Theocharis Vazakas

644 Evaluating Learning Outcomes of Soft Skills in Mechanical Engineering Education
Jan Breitschuh, Annica Helmich, Albert Albers and Gerd Gidion

650 A Case Study on the Design of a Modular Surgical Instrument for Removing Metastases using Engineering Design Tools
George Preca, Philip Farrugia and Aaron Casha

657 Personas and Role-Play Help Students (and Designers) Experiencing Reality
Gerard van Os and Karin van Beurden

663 Integral Design: The New Necessary Professional Skills for Architects and Engineers for their Role in Sustainable Development
Wim Zeiler

669 Demanding it All from the Novice Mechanical Engineer through Design and Manufacture
Marc Masen, Andrew Brand, Yanliuxing Yan, Julie Varley, Peter Spence and Peter Childs

Chapter 16 – Teaching Design Education Methods

676 Exploring the Evolution of a Mousetrap
Gunnar Gundersen
Design Reasoning Patterns in NPD Education Design
Tero Sakari Juuti, Timo Lehtonen, Kaisu Rättyä, Nillo Halonen, Mikko Vanhatalo and Päivi Kujansuu

An Experience-Based Approach to Teaching Product Design
Juan Jauregui Becker and Wessel Wits

Shared Memory in Design Complexity
Nenad Pavel and Arild Berg

Teaching Ethics in Engineering and Design, the Necessity of Concurrent Engineering.
Carlos Alberto González-Almaguer, Fernando Arriaga, Jose Manriquez, Alejandro Acuña, Grecia Gonzalez, Ricardo Huerta and Joaquim Lloveras

Aesthetics versus Usability: What Drives our Product Choices?
Stephen Trathen

Chapter 17 – Teaching Design Technology

Accommodating Different Learning Styles: Bridging Math and Form
Nis Ovesen

Where Design and Electronics Meet: Integrate Electronics in Product Design
Tommie Varekamp, Ianus Keller and Jo Geraedts

Teaching Digital Technologies in Industrial/Product Design Courses in Portugal
Ana Cristina Dias, Rita Assoreira Almendra and Fernando Moreira da Silva

3D CAD and Mental Scaling in the Product Design Process: Exploring the Creativity Potential in Design Education
Harald Skulberg

The Challenges of Developing Styling DNA Design Methodologies for Car Design
Shahriman Zainal Abidin, Azlan Othman, Zafruddin Shamsuddin, Zaidy Samsudin and Halim Hassan
Foreword

DESIGN EDUCATION &
HUMAN TECHNOLOGY RELATIONS

The 16th International Conference on Engineering and Design Education (E&PDE) was held at the University of Twente on the 4th and 5th September 2014.

The conference was hosted by the Faculty of Engineering Technology of the University of Twente in Enschede, the Netherlands, in close collaboration with the Design Education Special Interest Group (DESIG) of the Design Society and the Institution of Engineering Designers (IED).

The E&PDE conference was initiated in 1999 in the United Kingdom and was consolidated as an international conference in 2004; alternately taking place in the UK and abroad. Its objective is to facilitate the bringing together of people from within education and industry who are interested in sharing expertise on the implementation and analysis of contemporary and developing methodologies in engineering and design education. It provides educators and researchers from product development, engineering and industrial design, together with industry and government representatives, with a platform for discussion on topical educational issues in design education and its future direction.

Conference Theme
As the host institution for E&PDE 2014 we chose to focus on the influence of technology on human behaviour and vice versa. We developed the theme of Design Education & Human Technology Relations in the knowledge that product designers and engineers influence human behaviour with their designs. This influence works in two directions. Designers develop products and services that help people in their functioning in daily life, that are tools for them to use. However, these tools often also change the behaviour and possibilities of their users. New and faster ways of transportation helped people to get to their work, family and friends, but it also gave them the possibility to live further away from their work. This created new phenomena, such as traffic lights and traffic jams. More recent, the internet made letters almost obsolete. More and more designers start to realize that their designs can have unexpected, and sometimes even unwanted consequences. Therefore it is important that design educators explore the interrelationships between engineering and technology, and behavioural, societal, cultural and ethical issues.
Our aims with the theme Human Technology Relations are to:

- Provide a networking platform for a broad variety of participants
- Explore how engineering and product design education contributes to a balanced development of technological opportunities and the needs of people for future society
- Discuss how engineering and product design education can lead to meaningful products for a world that is mediated by technology
- Explore how the focus on human technology relations can contribute to the development of creativity and design success
- Discuss how design education may best be used to address the social and ethical aspects of technology
- Seek innovative solutions for a better world through “best practices” in engineering and design education
- Embed the integration of all aspects of engineering and design in our curricula
- Explore the broadening and deepening of student experiences through international exchange

Conference Programme
25 countries will be represented at the Conference this year. 229 contributions were received which explored the full depth and diversity of the conference theme. Amongst them were 55 student contributions. After reviewing abstracts, full paper submissions and subsequent revisions 120 contributions were selected to be included in the proceedings, of which 12 were poster presentations at the conference. The accepted papers allowed the committee to build a conference programme with a number of major streams including; Design Education Methods, Using Technology in Teaching, Creativity, Design Education and Design Cultures, Ethics and Emotions and International Collaboration. As such, the programme covers the issues and meets the needs that arose when the conference theme was defined.

Our keynote speakers Professor Peter-Paul Verbeek and Remko van der Lugt presented interesting lectures on the subjects Design for Society: Understanding and Evaluating the Relations between Humans and Technologies and Educating the Product-Service System Designer: A call for Engagement.

Conference Host
The E&PDE 2014 took place on the campus of the University of Twente and was hosted by the Faculty of Engineering Technology. The University is located in the eastern part of the Netherlands, between the towns of Enschede and Hengelo. The Faculty of Engineering Technology provides educational programmes in Mechanical Engineering, Industrial Design Engineering and Civil Engineering, with a strong focus on the integrative aspects in these domains. Furthermore was the Conference supported by Saxion University of Applied
Sciences in Enschede and the Department of Industrial Design Engineering of KIVI, the Royal Institution of Engineers in the Netherlands.

Acknowledgements

This 2014 edition of the E&PDE conference was made possible through the commitment and efforts of many people. I would like to thank Ahmed Kovacevic, Judith Grace, Brian Parkinson and Erik Bohemia for their excellent leadership in organizing this conference and their dedication to the common cause: guaranteeing a conference series of growing quality and impact. I am grateful for having had the opportunity to work with Alison Parker and Nadine Pearce from the Institution of Engineering Designers, the work of organizing the conference would have been much more onerous without the practical support, hands-on experience and in-depth knowledge which Alison and Nadine provided.

I would sincerely like to thank all the members of the international academic review board. They succeeded in the timely review of a vast number of papers, while retaining a true professional and academic stance on the intrinsic value and qualities of all papers submitted.

Naturally, I would like to express my gratitude to my colleagues from the Faculty of Engineering Technology – especially Wouter Eggink, Maaike Mulder, Pepijn van Passel, Juan Jauregui Becker and Wessel Wits, and especially our conference secretary Ans Fokkinga.

On behalf of the conference programme committee;

Arthur Eger
Head of the Department of Product Design
Conference Programme Committee
Erik Bohemia  Design Education Special Interest Group (DESIG)
Arthur Eger  University of Twente
Wouter Eggink  University of Twente
Judith Grace  Institution of Engineering Designers
Ahmed Kovacevic  Design Education Special Interest Group (DESIG)
Brian Parkinson  Institution of Engineering Designers
Wessel Wits  University of Twente

Local Organisation Committee at University of Twente
Ans Fokkinga
Juan Jauregui Becker
Maaike Mulder-Nijkamp
Pepijn van Pessel

International Academic Review Board
Sebastian Adolphy  Fraunhofer Institute for Production Systems
Alireza Ajdari  University of Tehran
Ermanno Aparo  Polytechnic Institute of Viana do Castelo
Bjørn Baggerud  NTNU
Anders Berglund  Royal Institute of Technology, KTH
Hilde Osterås Berntsen  NTNU
Richard Bibb  Loughborough University
Guy Bingham  Loughborough University
Erik Bohemia  Loughborough University
Casper Boks  NTNU
Fraser Bruce  University of Dundee
Lyndon Buck  Buckinghamshire New University
Hernan Casakin  Ariel University Center of Samaria
Peter Childs  Imperial College London
Derek Covill  University of Brighton
Steve Culley  University of Bath
Guido De Grande  Artesis University
Chris Dowlen  London South Bank University
Kevin Edwards  Aston University
Arthur Eger  University of Twente
Wouter Eggink  University of Twente
Michael Evatt  IED
Bob Eves  Bournemouth University
Nusa Fain  University of Strathclyde
Philip Farrugia  University of Malta
Ana Filomena Curralo  Polytechnic Institute de Viana do Castelo
Peter Ford  De Montfort University
Nigel Patrick Garland
Detlef Gerhard
Michele Germani
Aysar Ghassan
Carolina Gill
Deshinder Singh Gill
Mey Goh
Hilary Grierson
Tore Gulden
Malte Hinsch
Peter Hogarth
Bengt Yngve Homqvist
Bryan Howell
Tania Humphries-Smith
William Ion
Doris James
Juan Manuel Jauregui Becker
Mark Jenkins
Tim Katz
Ahmed Kovacevic
Steve Lambert
Lau Langeveld
Tatjana Leblanc
Colin Ledson
Timo Lehtonen
Andre Liem
Debra Lilley
Blaine Lilly
Udo Lindemann
Julian Lindley
Derek Little
Joaquim Lloveras
Jennifer Loy
Julian Paul Malins
João Martins
Mark McGrath
Alison McKay
Chris McMahon
Luis Mejia
Carlos Alberto Montana Hoyos
Richard Morris

Bournemouth University
Vienna University of Technology
Università Politecnica delle Marche
Coventry University
Ohio State University
University of Brighton
Loughborough University
University of Strathclyde
Oslo og Akershus University College of Applied Sciences
Institute for Engineering Design
DESIG
Lulea University of Technology
Brigham Young University
Bournemouth University
University of Strathclyde
Icesi University
University of Twente
University of Sussex
University of Brighton
City University London
University of Waterloo
Delft University of Technology
University of Montreal
IED
Tampere University of Technology
NTNU
Loughborough University
Ohio State University
TU Munich
University of Hertfordshire
University of Strathclyde
Technical University of Catalonia (UPC)
Griffith University
Robert Gordon University
Polytechnic Institute of Viana do Castelo
Dublin Institute of Technology
University of Leeds
University of Bristol
Icesi University
University of Canberra
University of Brighton
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maaike Mulder-Nijkamp</td>
<td>University of Twente</td>
</tr>
<tr>
<td>Aede Hatib Musta’amal</td>
<td>Universiti Teknologi Malaysia</td>
</tr>
<tr>
<td>Brian Parkinson</td>
<td>IED</td>
</tr>
<tr>
<td>Gert Pasman</td>
<td>Delft University of Technology</td>
</tr>
<tr>
<td>Neven Pavkovic</td>
<td>Faculty of Mechanical Engineering and Naval</td>
</tr>
<tr>
<td></td>
<td>Architecture Croatia</td>
</tr>
<tr>
<td>Viviana Polo</td>
<td>Universidad de San Buenaventura</td>
</tr>
<tr>
<td>Luis Pons Puiggros</td>
<td>University Hospital of Vall de Hebron, Health</td>
</tr>
<tr>
<td></td>
<td>Institute of Catalonia</td>
</tr>
<tr>
<td>Alun John Price</td>
<td>Edith Cowan University</td>
</tr>
<tr>
<td>Lucia Rampino</td>
<td>Politecnico de Milano</td>
</tr>
<tr>
<td>Ger Reilly</td>
<td>Dublin Institute of Technology</td>
</tr>
<tr>
<td>Sergio Rizzuti</td>
<td>University of Calabria</td>
</tr>
<tr>
<td>Dosun Shin</td>
<td>Arizona State University</td>
</tr>
<tr>
<td>Liliana Soares</td>
<td>Polytechnic Institute of Viana do Castelo</td>
</tr>
<tr>
<td>Darren Southee</td>
<td>Loughborough University</td>
</tr>
<tr>
<td>Brian Stone</td>
<td>The Ohio State University</td>
</tr>
<tr>
<td>Katja Thoring</td>
<td>Anhalt University of Applied Sciences</td>
</tr>
<tr>
<td>David Tormey</td>
<td>Dublin Institute of Technology</td>
</tr>
<tr>
<td>Svetlana Usenyuk</td>
<td>Aalto University</td>
</tr>
<tr>
<td>Stijn Verwulgen</td>
<td>Artesis Hogeschool Antwerpen</td>
</tr>
<tr>
<td>Michael Vielhaber</td>
<td>Saarland University</td>
</tr>
<tr>
<td>Markus Voss</td>
<td>DHBW Baden-Wuerttemberg Cooperative State</td>
</tr>
<tr>
<td>Wessel Wits</td>
<td>University of Twente</td>
</tr>
<tr>
<td>Bruce MacLeod Wood</td>
<td>Glasgow Caledonian University</td>
</tr>
<tr>
<td>Wim Zeiler</td>
<td>TU Eindhoven</td>
</tr>
</tbody>
</table>
The Design Society is an international non-governmental, non-profit making organisation whose members share a common interest in design. It strives to contribute to a broad and established understanding of all aspects of design, and to promote the use of results and knowledge for the good of humanity.

The Design Society was founded in 2000, taking on the previous activities and responsibilities of the Workshop Design Konstruction (WDK) Society, especially the organisation of the International Conference on Engineering Design (ICED) series of conferences, which had been running since 1981. Since 2000 the Society has organised ICED conferences in Stockholm, Melbourne, Paris, Stanford, Copenhagen and Seoul, with the 2015 event planned for Milan. It has also expanded with members from forty countries and with further very popular events such as the Engineering and Product Design Education conferences and the International Conference on Design Creativity among many other activities. The Society is very active in publishing papers and proceedings on design topics, and it has a developing portfolio of other design resources available to members including a repository of theses and collaborative agreements with a number of design research journals.

The Design Society concentrates on activities that transcend national boundaries, and, where possible, will seek to complement national activities. The objects of the Society are to promote the development and promulgation of understanding of all aspects of design across all disciplines by:

- creating and evolving a formal body of knowledge about design;
- actively supporting and improving design research, practice, management and education;
- promoting co-operation between those in research, practice, management and education;
- promoting publications and their dissemination;
- organising international and national conferences and workshops;
- establishing Special Interest Groups and other specialist activities;
- co-operating with other bodies with complementary areas of interest.

The Design Society is a charitable body, registered in Scotland, number SC 031694. Registered Company Number: SC401016
The Design Society is open to new members. www.designsociety.org

EPDE 2014 XXIII
Established in 1945, Incorporated by Royal Charter in 2012, the Institution of Engineering Designers is the only organisation in the UK to represent those working in the many fields of engineering and product design.

Our members enjoy a range of benefits, including advice on professional codes of conduct, a job board, regular newsletters to keep members up to date with relevant developments and events and a helpful legal advice line. We host regular events which offer our members the chance to network with other professionals and members receive the Institution's bi monthly journal – Engineering Designer.

We are committed to encouraging CPD for all our members, and support ongoing training and skills development.

We are licensed by the Engineering Council to assess candidates wishing to join the EC's Register of Professional Engineers and Technicians and we also accredit academic and training courses, both for membership of the Institution and registration with the EC. Those members who achieve the appropriate academic and competence standards receive Chartered Engineer, Incorporated Engineer or Engineering Technician status.

We are also a licensed body of the Society for the Environment and are able to register suitably qualified and competent members as Chartered Environmentalists (CEnv).

We welcome members from any organisation that has a design function and employs design engineers and we have many academic teaching staff in membership. The first step to becoming a member is to register as an Affiliate. You can find out more about becoming a member of the IED at: http://www.ied.org.uk