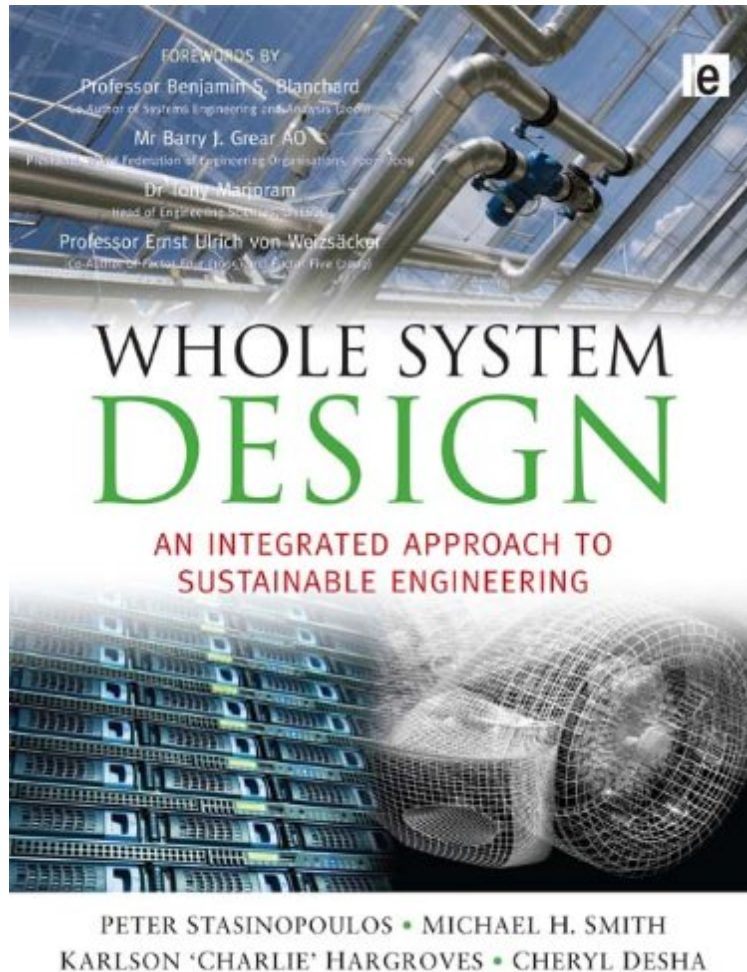


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Whole System Design: An Integrated Approach to Sustainable Engineering

Peter Stasinopoulos, Michael H Smith, Karlson Hargroves, Cheryl Desha
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Peter Stasinopoulos, Michael H Smith, Karlson Hargroves, Cheryl Desha : Whole System Design: An Integrated Approach to Sustainable Engineering before purchasing it in order to gage whether or not it would be worth my time, and all praised Whole System Design: An Integrated Approach to Sustainable Engineering:

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Whole System Design is increasingly being seen as one of the most cost-effective ways to both increase the productivity and reduce the negative environmental impacts of an engineered system.A focus on design is critical, as the output from this stage of the project locks in most of the economic and environmental performance of the designed system throughout its life, which can span from a few years to many decades. Indeed, it is now widely acknowledged that all designers - particularly engineers, architects and industrial designers - need to be able to understand and

implement a whole system design approach. This book provides a clear design methodology, based on leading efforts in the field, and is supported by worked examples that demonstrate how advances in energy, materials and water productivity can be achieved through applying an integrated approach to sustainable engineering. Chapters 1-5 outline the approach and explain how it can be implemented to enhance the established Systems Engineering framework. Chapters 6-10 demonstrate, through detailed worked examples, the application of the approach to industrial pumping systems, passenger vehicles, electronics and computer systems, temperature control of buildings, and domestic water systems. Published with The Natural Edge Project, the World Federation of Engineering Organizations, UNESCO and the Australian Government.

'The authors have provided a publication which can, and must, be widely used in our university and technical training institutions. The examples highlight the simple application of the theory presented and make the book suitable for self learning as well as in classroom or tutorial use.' Mr Barry J. Grear AO, President, World Federation of Engineering Organizations (WFEO) 'I was thrilled and impressed reading this manual that features an integrated approach towards resource productivity and, ultimately, sustainability both at small and large scale.' Professor Ernst Ulrich Von Weizsacker, Co-recipient of the 2008 DBU German Environmental Award and former President of the Wuppertal Institute for Climate, Environment and Energy 'The work of the Engineering Sustainable Solutions Program of The Natural Edge Project, and this publication, could not be more timely and relevant.' Dr Tony Marjoram, Head of Engineering Sciences, UNESCO 'I am greatly impressed with what has been accomplished in this publication! The material seems to be very well organized, quite comprehensive, and quite complete.' Professor Benjamin S. Blanchard, Co-Author of Systems Engineering and Analysis (2006) 'I was buried in Whole System Design. It's a real little gem and I look forward to using it. It's very clear, straightforward and I love the examples. The online supports are also a tremendous facility and together they can play a significant role in practical terms in helping realise a sustainability informed engineering education curriculum globally.' Edmond Byrne, Department of Process Chemical Engineering, University College Cork, Ireland 'The publication of this book is both timely and important given its focus on whole system design and I commend it to researchers, practicing engineers and designers.' Dr Andrew Johnson, CSIRO Group Executive, Environment, CSIRO, Australia 'I am convinced that Whole System Design will, if widely used, contribute much to help societies make the urgently needed, holistic changes. My compliments and wholehearted support for the developers of this excellent material.' Professor Don Huisingsh, Retired Senior Scientist in Sustainable Development and Editor-in-Chief of the Journal of Cleaner Production, Institute for a Secure and Sustainable Environment, University of Tennessee 'We see an urgent need for curriculum that develops professionals who can create sustainable solutions for society. This 'Whole System Design' textbook provides the rationale and information needed to incorporate academically rigorous sustainability content into curriculum for built environment professionals.' Wynn Calder, Director, Association of University Leaders for a Sustainable Future 'Whole System Design is an excellent aid for teaching sustainable development to engineering students who are not exposed to sustainability in any other engineering course.' Professor Rajaratnam Shanthini, Faculty of Engineering, University of Peradeniya, Sri Lanka 'A valuable small book for teaching engineering design' International Journal of Ambient Energy 'If you are an engineer seeking detailed, step-by-step worked examples on how to design more sustainably- or even just a wannabe like myself seeking to understand the design process-read this book.' Nat Fortune, Northeast Sun, 2009. About the Author Peter Stasinopoulos, Michael H. Smith, Karlson 'Charlie' Hargroves and Cheryl Desha are members of The Natural Edge Project, a Sustainability Think-Tank hosted by Griffith University and the Australian National University.