Functional Safety For Road Vehicles: New Challenges And Solutions For E-mobility And Automated Driving
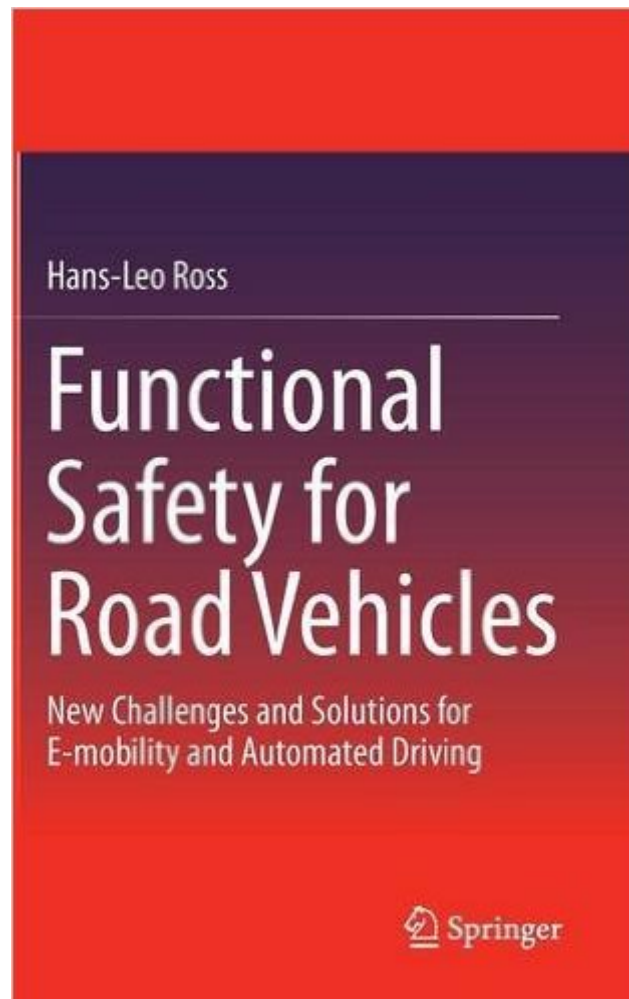
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Functional Safety for Road Vehicles

New Challenges and Solutions for E-mobility and Automated Driving

Springer

Synopsis

This book highlights the current challenges for engineers involved in product development and the associated changes in procedure they make necessary. Methods for systematically analyzing the requirements for safety and security mechanisms are described using examples of how they are implemented in software and hardware, and how their effectiveness can be demonstrated in terms of functional and design safety are discussed.Given todayâ ™s new E-mobility and automated driving approaches, new challenges are arising and further issues concerning â œRoad Vehicle Safetyâ • and â œRoad Traffic Safetyâ • have to be resolved. To address the growing complexity of vehicle functions, as well as the increasing need to accommodate interdisciplinary project teams, previous development approaches now have to be reconsidered, and system engineering approaches and proven management systems need to be supplemented or wholly redefined.The book presents a continuous system development process, starting with the basic requirements of quality management and continuing until the release of a vehicle and its components for road use. Attention is paid to the necessary definition of the respective development item, the threat-, hazard- and risk analysis, safety concepts and their relation to architecture development, while the book also addresses the aspects of product realization in mechanics, electronics and software as well as for subsequent testing, verification, integration and validation phases.In November 2011, requirements for the Functional Safety (FuSa) of road vehicles were first published in ISO 26262. The processes and methods described here are intended to show developers how vehicle systems can be implemented according to ISO 26262, so that their compliance with the relevant standards can be demonstrated as part of a safety case, including audits, reviews and assessments.

Book Information

Hardcover: 269 pages

Publisher: Springer; 1st ed. 2016 edition (July 26, 2016)

Language: English

ISBN-10: 3319333607

ISBN-13: 978-3319333601

Product Dimensions: 6.1 x 0.7 x 9.2 inches

Shipping Weight: 1.1 pounds (View shipping rates and policies)

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Best Sellers Rank: #2,038,125 in Books (See Top 100 in Books)   #134 inÂ Books > Computers & Technology > Programming > Functional   #345 inÂ Books > Engineering & Transportation >

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