Description for Advertising

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Life-Cycle of Structures Under Uncertainty: Emphasis on fatigue-sensitive civil and marine structures
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In the United States and many parts of the developed world, a great number of civil and marine structures are approaching the end of their design service life. These ageing structures pose mounting economic, social and environmental risks associated with unsatisfactory performance under normal and extreme loading conditions. Nevertheless, the natural and financial resources for maintenance are strictly constrained. Therefore, there is a growing need to optimally manage these deteriorating structures in the life-cycle context. There have been several books dealing with maintenance and safety of deteriorating structures. However, the existing books contain very broad concepts and applications for maintenance planning without presenting life-cycle cost and performance analysis.

This book is targeted at students, researchers and practitioners in civil and marine engineering. It provides state-of-the-art theoretical background and practical applications of life-cycle analysis and maintenance optimization for fatigue-sensitive structures. The primary topics covered include probabilistic concepts of life-cycle performance and cost analysis, fatigue crack detection under uncertainty, optimum inspection and monitoring planning, multi-objective life-cycle optimization, and decision making in life-cycle analysis. Applications contain fatigue-sensitive bridges and ships.