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Book review

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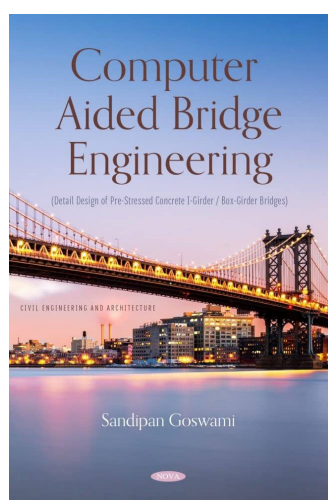
Civil Engineering



Book review

Computer Aided Bridge Engineering (Detail Design of Pre-Stressed Concrete I-Girder/Box-Girder Bridges)

Sandipan Goswami, Nova Science Publishers, Incorporated,
Hauppauge, NY, USA, 2022, ISBN 978-1-68507-413-5,
£203.99, 381 pp.



The book under review, *Detail Design of Pre-Stressed Concrete I-Girder/Box-Girder Bridges* is part of a series of books on Computer Aided Bridge Engineering. The author's aim is to cover various types of highway bridge design with worked-out examples. Alongside these worked-out examples, the book covers the design of pre-stressed concrete I-girder and box-girder type superstructures, including abutments, piers and their foundations.

The author uses the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) standard to explain the various design considerations, and further supports the example design

problems presented by following the same standard. He presents the volume in two broad sections, namely, (a) grillage model analysis of a girder and deck-type bridge and (b) design of various bridge components using the AASHTO LRFD guidelines.

In the section covering grillage analysis, the author explains from first principles how to calculate the section properties of members, load distributions and design actions in the form of loads, moments and shears in square and skew-type decks, for both girder and box-type superstructures.

In the next chapters covering concrete I-girder and box-girder bridges, the author explains the various design steps followed in the design of girders, deck slabs, cantilever slabs and prestressing cables, following the AASHTO LRFD guidelines. The section covering design of abutments and piers, along with pile/open foundations, completes the design methodology of all the other structural components of a typical highway bridge.

The book is proposed to be read alongside the user guide *Hands on Practice on Computer Applications*. A computer software *ASTRA Pro* is recommended for use, which will help to process the analysis and design works. Both the user guide and the software are available for download at the publisher's website, which is also mentioned in the book's preface. The downloads seem to offer working Excel files for practising engineers, which they will be able to use as design tools, as a learning aid, and to review performance of the structural components under various design parameters. Although the book covers the AASHTO LRFD guide thoroughly, the author offers to support interested individuals if they are likely to need advice on British Eurocode standards or the Indian Roads Congress standards.

The example problems are solved with well-illustrated sketches, figures and tables for the readers' ease of understanding. The book will serve as a good design handbook for students in academia learning about bridge design. The worked-out examples and the step-by-step approach will also be helpful for someone in their early career, as the reference to the AASHTO code will help in understanding the design process of such highway bridges.

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