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Abstract

CONSIDERATIONS ON INTEGRATED BRIDGE DESIGN SYSTEM IN CYBERNETIC CONCEPT

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The paper presents some consideration concerning the construction of an integrated bridge design system based on three fundamentals concepts adopted from systems engineering, bridge convergent engineering and informatics.

Systems engineering introduced the concept of total realization of the bridge, corresponding to the four stages the bridge passes through its existence: design, realization, operational stage, and technical-economical evaluation phase. All four compose a closed system with the outputs influencing the inputs.

Convergent engineering of the bridges underlines the design concept by integration of all phenomena emerging on the life cycle of a bridge, due to external factors and resistance structure definition parameters. Informatics intervenes in integrated bridge design through the techniques of monitoring the phenomena to obtaining data, information, and knowledge, and through effective use of computers in the design process.

The paper develops around a logical diagram, which comprises 22 phases concerning the integrated bridge design system. Among them we presented extensively: study of social demand, estimations including pre-feasibility and feasibility, determination of the environmental module, identification of the universe of the bridge, defining the qualities of the processes from the bridge – system, design processes characteristics and structural characteristics.

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