

**ANALYSIS AND DESIGN OF A
SUSPENSION BRIDGE**

Undergraduate Design Project
Submitted to the Faculty of the
Cavite State University
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In partial fulfillment
of the requirements for the degree of
Bachelor of Science in Civil Engineering



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ABSTRACT

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The design project was conducted at Cavite State University from October 2005 to March 2006. It was presented on February 23, 2006 at the Information Technology Building, Cavite State University.

The design project aimed to enhance the knowledge of students in analyzing and designing a suspension bridge with the application of engineering software called Structural Aid Analysis and Design (STAAD Pro.). The design project also served as practical application of the ideas and knowledge learned in the design subjects.

Ultimate Strength Design was used in the design of the structural members of the bridge. Detailed architectural and structural drawings, structural design, design specifications and detailed cost estimates were included in the study.

The suspension bridge has a span of 300 meters with four traffic lanes in which all are being supported by a stiffening truss connected to the cable suspenders, which were then connected to the main cable and anchored at the top of the pylon. The bridge was designed to carry a maximum load of 20-ton truck with a 16-ton semi-trailer.

A thorough analysis of the design guidelines, procedures and specifications was applied in the study. The parameters used in the analysis were carefully studied and determined to arrive to an efficient and effective design.

The design project exhibited the limitations, requirements, principles and considerations in designing a suspension bridge.

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