

BUCKLING AND EULER'S FORMULA: AN EXPERIMENTAL INVESTIGATION WITH MECHANICAL TESTING SYSTEM

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The objective of this study is to provide an overview of buckling behavior of engineering structures and utilize the mechanical testing system available in the VSU engineering laboratory to examine the validity of the Euler's equation of buckling. We will also analyze the influence of the variables involved in the equation in buckling behavior of engineering structures. We have measured critical load of buckling of several wood samples as a function of length, elastic modulus, and moment of inertia. Through these experiments, the importance of the knowledge of buckling in stability of structures specifically columns becomes apparent. The results of this study indicate that if the material and cross sectional area of the sample remain constant, the maximum load of buckling is inversely proportional to the length of the sample.