

# 《Computer-Aided Geometric Design》

## Assignment 4

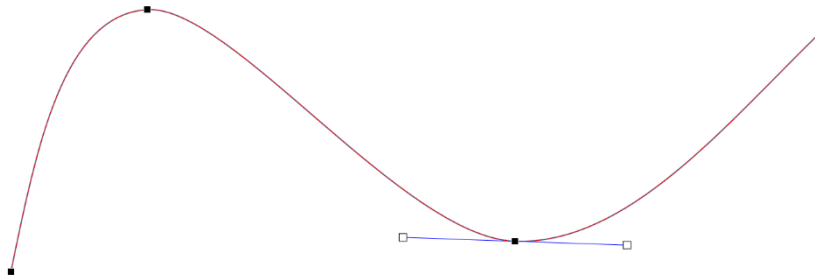
October 9, 2024

1. Prove: Let  $f(x) \in C^2[a, b]$  be any interpolating function, and  $S(x)$  be the natural interpolating cubic spline function (with second derivative equal to zero at both endpoints), then:

$$\int_a^b [S''(x)]^2 dx \leq \int_a^b [f''(x)]^2 dx$$

where the equality holds if and only when  $f(x) \equiv S(x)$ .

2. Implement an interactive program for generating cubic Bézier spline curves. Reference the interactive interface of the drawing tool in Microsoft Word or PowerPoint under "Insert" - "Shapes" - "Curve":



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Submission deadline: Evening of **October 20, 2024**

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