

Project 2. (Due December 3, 2008)
Math 353 Section 12, Fall 2008, University of Delaware

1. **Motion Control in Computer -Aided Modeling.**

Reality Check 5. (Text book page 279)

Direction: Do all questions 1 through 5.

Additional References:

- H. Wang, J. Kearney, K Atkinson, " Arc-length Parameterized Spline Curves for Real-time Simulation" In : *Curve and Surface Design: Saint Malo 2002*, Eds.
- B. Guenter, R. Parent, "Motion Control: Computing the Arc Length of Parametric Curves". *IEEE Computer Graphics and Applications*, **10**. 72-78, 1990.

2. **The Tacoma Narrows Bridge.**

Reality Check 6. (Text book page 328)

Direction: Do all questions 1 through 4.

Additional References:

- K. Yusuf Billah and Robert H. Scanlan. "Resonance, Tacoma Narrows Bridge Failure and Undergraduate Physics Textbooks," *American Journal of Physics* , 59(2), Feb. 1991, pp. 118-124.
- Lazer, A.C., and P.J. McKenna. 1990. Large-amplitude periodic oscillations in suspension bridges: Some new connections with nonlinear analysis. *SIAM Review* 32(December):537.
- P. J. McKenna, Large Torsional Oscillations in Suspension Bridges Revisited: Fixing an Old Approximation, *American Math Monthly*, Jan. 1999.

Your report should have the following sections:

- (a) Introduction. (for each problem)
- (b) Detailed answers for the questions. You might put MatLab codes in appendices.
- (c) Conclusion.
- (d) References.
- (e) Appendices.