# Homework Set #5 ENEE 664 Spring 2004.

Due back Thursday
March 9, 2004.

1. See EXERCISE, page 4 of Lecture 5(a)

2. See EXERCISE, page 7 of Lecture 5(b)

3. Show that an extremal length arc joining two distinct point $a, b \in S^2 = \{(x,y,z): x^2+y^2+z^2=1\}$ is on a great circle on the sphere.

4. Find (the) point in $\mathbb{R}^2$ that is closest to the origin and also lies on the ellipse

$$\frac{(x-a)^2}{A^2} + \frac{(y-b)^2}{B^2} = 1$$

Clearly state any second order condition you use. [This problem is a peek into the material on second order conditions. You may use Tits' lecture notes for guidance].