KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

COMPUTER PROJECT 4, EE 556 (071)

For the system given in Computer Project # 1, develop a tabu search (TS) program to design a tabu search-based power system stabilizer (TSPSS) using $\Delta\omega$ as the control input. Select maximizing the minimum damping ratio as an eigenvalue-based objective function. With your program, investigate the followings: -

a. Effect of tabu list size (Try 3, 5, 7, …)

b. Effect of maximum number of generations (Try 20, 40, 60, …)

c. Effect of number of trial solutions (Try 10, 15, 20, …)

d. Find the optimal design of TSPSS

e. Carry out the eigenvalue analysis of the system with TSPSS. Compare with the classical PSS.

f. Carry out the time-domain simulations for 5 seconds with a 10% pulse input of mechanical torque form 1.0s to 1.1s. Compare the simulation results without PSS and with the classical PSS.

Assume any missing data you may need.

Submission:

Write a formal report that includes the eigenvalue analysis and simulation results. A hardcopy of the program developed must be attached. A softcopy of all materials (report and program) must be e-mailed to mabido@kfupm.edu.sa. All materials are due on December 9, 2007.