The purposes of these team Matlab project assignments are to introduce the student to the use of Matlab, to use Matlab as a tool to learn the theory presented in lecture and to analyze more complicated systems than pencil and paper conveniently allow, and to introduce the student to team project work. The EE 301 class is to form into two or three person teams for the Matlab assignments; teams can be greater than three, but the larger teams will require the prior approval of the instructor. For the submittal of each assignment, each team will submit one report, with each team member providing one thoughtful, reflective paragraph discussing what they have learned.

All students are to read the beginning sections of Chapter 21 in their text. Matlab is available on computers in the Digital Senior Project Lab (20-118) which should be open from 8:00am to 6:00pm Monday through Friday. The EE 341 lab (20-113) also has a copy of Matlab installed on each of its machines. Access to the EE 341 lab will be limited to periods outside scheduled lab times. Request access to the lab at the Senior Project window – your name should be on a list from the EE 301 class list. The team members are to learn the use of the Matlab through the online documentation and/or the Matlab supplied tutorial and/or through the use of the text material in Chapter 21. After completing the tutorials, each team is to enter the following Matlab m-file code and execute it. The report is to consist of a commented version of the m-file code, a print out of the magnitude and phase plots, and the individual paragraph from each of the team members discussing what they have learned from the experience. The report is due Monday September 30, 2002.

% script: bode_ex.m
% Bode plots are produced by the following code for the transfer
% function: \( H(s) = \frac{1000(s+0.1)}{(s^2+4s+100)} \).
% w = logspace(-2, 3);
Hw = (1000*(0.1+j*w))./(100-w.*w+j*w*4);
Hm = 20*log10(abs(Hw));
Hp = (180/pi)*angle(Hw);
subplot(2,1,1), semilogx(w, Hm)
title('magnitude of H')
xlabel('frequency(rad/s)')
ylabel('magnitude(dB)')
subplot(2,1,2), semilogx(w, Hp)
title('phase of H')
xlabel('frequency(rad/s)')
ylabel('phase(deg)')

Please feel free to use the ADSP and GUI capability provided on the disk with your text if you wish; the two folders may already be installed on the machines. However, the intent of the Matlab assignments is to introduce students to the use of Matlab as a tool for the future.