Reading  
Sections 4.1 through 4.3

Suggested Problems  
Section 4.1: Exercises 5, 6, 12, 13.  
Section 4.2: Exercises 11, 15, 29, 31.  
Section 4.3: Exercise 1, 5, 7.

Problems to be handed in in class on Monday, February 26-th

Problem 1 Consider the following functions  
\[ y_1 = t, \quad y_2 = \cos(t), \quad y_3 = 1, \quad y_4 = \sin(t). \]

Show that they form a fundamental set of solutions of the differential equation  
\[ y^{(4)} + y'' = 0 \]

Problem 3 Calculate the solution of the following 3-rd order Boundary Value Problem  
\[ y^{(3)} - 3y'' + 2y' = 0, \]
\[ y(0) = 1, \quad y'(0) = 0, \quad y''(0) = -1. \]

Problem 2 Consider the differential equation  
\[ y^{(4)} - 16y = e^t + \sin(t). \]

Write the general solution using the method of undetermined coefficients.