

→ Sy-S 432  
M 413 - Differential Equations - II

2003 - 2004 AB

UNIT I : Boundary value Problems; Preliminaries - Sturm-Liouville Problem  
Green's function - Application of Boundary value problem - Picard's theorem.  
Chapter 7 of prescribed textbook.

UNIT II : Oscillations of Second order equations : Fundamental results -  
Sturm's comparison theorem - Elementary linear oscillations - Comparison theo-  
rem of Hille - Wintner - oscillations of  $X'' + a(t)X = 0$ .  
Chapter 8 of prescribed textbook.

UNIT III : Stability of linear and nonlinear systems: Preliminaries - Elemen-  
tary critical points - system of equations with constant coefficients - Linear equation  
with constant coefficients - Lyapunov stability - Stability of quasi linear systems  
- second order linear differential equations.  
Chapter 9 of prescribed textbook.

UNIT IV : Equations with deviating arguments: Preliminaries - equations  
with constant delay - Equations with piecewise constant delay - a few other  
types of delay equations.  
Chapter 11 of prescribed textbook.

Textbook: S.G. Deo, V. Lakshmikantham and V. Raghavendra: Textbook of  
Ordinary Differential Equations, Second Edition, Tata McGraw-Hill Publishing  
Company Limited, New Delhi, 1997.