ME 353 M.M. Yovanovich

Week 10

Lecture 1
Pick up material on Summary of Convection Correlation Equations.
Forced External Convective Heat Transfer.
Correlation equations for external natural convection: vertical flat plate; horizontal rectangular plates; sphere, finite circular cylinder in axial and cross flow. See Table 7.9 on pages 394-395.
dry air properties at $T_{film} = (T_w + T_\infty)/2 = 330\,K$ obtained by means of properties calculator on Web site.

Lecture 2
Course critique.
Correlation equations for flow over isothermal spheres.
Correlation equation for cross flow over long circular cylinders. See Table 7.2 on page 370 for correlation coefficients for $Nu_D = C Re_D^m$ for various ranges of Re_D.
See Table 7.3 on page 370 for correlation coefficients for cross flow over noncircular cylinders.

Lecture 3
Solutions to Final Exams of 1996, 1997 are available in Eng. Photocopy Center.
Discuss forced convection from a finite circular cylinder in axial and cross flow; discuss the blockage parameter $P/\sqrt{A}$ which appears in the general solution.
Convection Sections from Text
Chapter 6: Sections: 1, 2.1, 2.2, 3, 6.1, 6.7, 8.3, 10, and Table 6.2
Chapter 7: Sections: 1, 2.1, 2.2, 2.3, 3, 4.1, 4.2, 5 and Table 7.9
Chapter 8: Sections: 1.1, 1.2, 2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 5, 6 and Table 8.4
Chapter 9: Sections: 4, 5, 6, 6.2, 6.3, 6.4, 8.2, 8.3
