

**ME6204 – CONVECTIVE HEAT TRANSFER  
2005-2006**

**Part I: Professor A.S. Mujumdar**  
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The required textbook is:

Convective Heat and Mass Transfer, W. Kays, M. Crawford and B. Weigand,  
4<sup>th</sup> Edition, McGraw-Hill.

Notes will be provided only for topics not covered in this textbook.

Reading assignments will be given weekly so students come prepared for discussion following lecture. One home assignment set will be given. Students will be expected to discuss their solutions in the class. A short group term paper may be assigned. The final examination will be OPEN BOOK.

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**Reading Assignment  
(Number refer to chapters and sections of the textbook)**

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- I. Review: Chapters 1-3
- II. Laminar boundary layer and Integral solutions – Chapter 5
- III. Turbulent boundary layer and Internal flows – Chapter 6
- IV. Laminar internal flows – Chapters 7 & 8 (partial)\*
- V. Laminar external flows – Chapters 9 & 10 (partial)\*
- VI. Turbulent external and internal flows – Chapters 11 & 12 (partial)\*

\* For lack of time, selected sections will be covered from these chapters.

**Additional Topics**

- Scaling and nondimensionalization of differential equations
- Selected topics (power point presentation)
  - Flow and heat transfer in laminar/turbulent tube flows
  - Impinging jet heat transfer – internal flow/heat transfer
  - Convective cooling of electronic components
  - Flow and heat transfer in flow over cylinders.