53:134 Structural Design II (Steel Structures)
Spring 2006 (Lecture Summary)
Week 3 (1/30 – 2/3/06)

1-30-06
- ♦ Discuss HW #2 (5.1.4): Analysis of indeterminate beam using the force method. Discuss the notation for moments; calculation of $M(x)$ and $m(x)$ for each section; compatibility condition. Shear and moment diagrams.
- ♦ Force method: for indeterminate frames – one redundant case. Examples 5.1.6, 5.1.7 on pages 262 - 267.
- ♦ **Read**: Chapter 5, Section 5.1.2 of the text.
- ♦ **HW#3**: 5.1.16 – analysis of an indeterminate frame.

2-1-06
- ♦ Discuss HW #3 (5.1.16): Analysis of indeterminate frames using the force method. Shear and moment diagrams.
- ♦ Force method: analysis of indeterminate trusses – one redundant case. Examples of externally and internally indeterminate trusses.
- ♦ **Read**: Chapter 5, Section 5.1.3 of the text.
- ♦ **HW#4**: 5.1.21

2-3-06
- ♦ Force method: analysis of indeterminate beams, frames and trusses – two-redundant case.

- ♦ <u>Beams and Frames</u>: Compatibility conditions when the two reaction forces are taken as redundant – explanation.
- ♦ <u>Beams and Frames</u>: Compatibility conditions when the one reaction force and one reaction moment are taken as redundant – explanation; rotational compatibility. Example 5.1.10
- ♦ <u>Trusses</u>: Compatibility conditions when two redundant member forces are taken as unknowns.
- ♦ **Read**: Section 5.1.4
- ♦ **HW#5**: 5.1.28