# CE388 - FUNDAMENTALS OF STEEL DESIGN

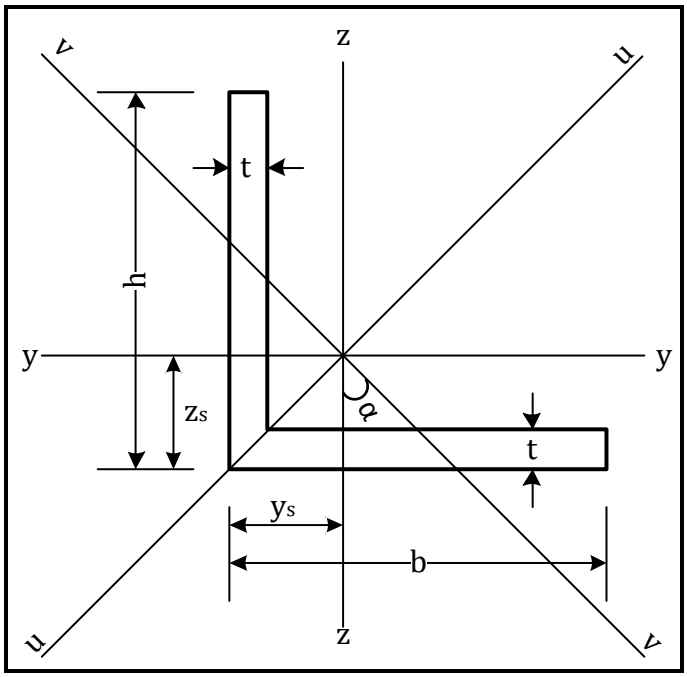
2013-2014 Spring Term

## Homework I

**Due date: 13 March 2014, 17:00**

Submit your homeworks to the "CE388 Dropbox" throwing which is located in basement of K2 building until 13 March 2014, 17:00. Fifty percent penalty applies to homeworks submitted from 13 March 2014, 17:00 until 14 March 2014, 17:00. Homeworks submitted thereafter will receive no credit.

**1.** For the angle sections shown below calculate the following properties and compare it with the tabulated values. Comment on your findings.




| Case | h (mm) | b (mm) | t (mm) |
|---|---|---|---|
| A | 100 | 100 | 10 |
| B | 200 | 100 | 12 |

**a.** Location of centroid ($y_s$ and $z_s$)
**b.** Moment of inertia with respect to z and y axes ($J_y$ and $J_z$)
**c.** Radius of gyration with respect to z and y axes ($i_y$ and $i_z$)
**d.** Moment of inertia with respect to the principal axes u and v ($J_u$ and $J_v$)
**e.** Radius of gyration with respect to u and v axes ($i_u$ and $i_v$)
**f.** Angle α between z-z and v-v axes

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A tension member constructed by connecting 3 plates as shown below. Determine the maximum tension load permitted according to TS648 Specification. St52 Steel. All bolts have 20 mm diameter.