Course Learning Objectives and Summary

1. Design of steel members for **combined bending and axial loads**.
   Use of interaction equations. Moment amplification due to axial loads, factor $B_1$. Determination of axial and flexural design strengths based on different failure modes.

2. Analysis of **indeterminate structures**.
   Force method, slope deflection method, direct stiffness method. Analysis of continuous beams, trusses and frames.

3. Design of **continuous beams**.
   Analysis of continuous beams. Determination of required moment strength. Determination of design flexural strength.

4. Design of **indeterminate trusses**.
   Preliminary design: selection of sections. Analysis of the indeterminate truss. Checking of compression and tension members for compliance with code requirements.

5. Design of **frames**.
   Braced and unbraced frames. Moment amplification due to side sway, factor $B_2$. Preliminary design for indeterminate analysis. Determination of axial and flexural design strengths based on different failure modes. Checking of interaction equations.