

THEORY AND PRACTICE OF STEEL CONNECTION DESIGN USING IDEA STATICA

BECOME A CERTIFIED CONNECTION DESIGN PROFESSIONAL

Enrol in the online course and master the analysis, design and code-check of various steel connections in your everyday engineering practice.



PRESENTATION

The course *Theory and practice of steel connection design using IDEA StatiCa* is a comprehensive training for all structural engineers and detailers involved in connection design. It will guide you from basic concepts and software commands to advanced techniques, allowing you to exponentially increase your productivity in connection design.

COURSE DESCRIPTION

- It is an online course that is taken via our platform, IDEA StatiCa Campus. The campus is always open, which means that **access is unlimited (24/7 - 24 hours a day, seven days a week)**.
- The course is self-paced, **you can start whenever you want**.
- The **estimated duration** of the course is **50 learning hours**, done at the student's convenience.
- Once enrolled in the course, **you will have 60 days to complete it**.
- It is not necessary to have an IDEA StatiCa licence. **An educational licence will be provided** so the student can follow the course and do the activities.
- **Technical and teaching support** can be accessed at any time.
- **You will obtain a professional certificate**, issued by IDEA StatiCa, upon completing the course.

OBJECTIVES

- Learn to use IDEA StatiCa software from entry-level to the most advanced level.
- Design and code-check your welded and bolted steel connections, footings and anchoring of various topologies and loading.
- Obtain critical information about the connection design and its compliance with the code (AISC, Eurocode etc.).
- Understand IDEA StatiCa's design assumptions and how to interpret them. Become familiar with the Component-based Finite Element Method ("CBFEM").
- Optimize connection design topology while keeping the design code-driven and compliant.
- Use IDEA StatiCa's capacity in the BIM environment to leverage data models from CAE/CAD software like SAP2000 and ETABS, Tekla Structures, Autodesk Advance Steel, Revit.

CONTENT

The course is divided into 12 teaching units, organised as follows:

0. As a precursor to the delivery of the course, we take a look at the main features of the method used in IDEA StatiCa Connection, CBFEM.
1. An introductory unit about the user interface, the setup, and the workflow with the software.
2. The geometry unit in which we explain how to define the main members of the connection.
3. Design and modelling, where we show all the operations used to connect the members.
4. Introduction of loads, both directly and using the many import options that the programme offers.
5. The main type of analysis, stress-strain, via which the connection's components are checked.
6. Stiffness analysis of the connection: its importance and the possibilities it offers as a means of optimizing the global model of the structure.
7. We will also cover other types of analysis that we can do with IDEA StatiCa Connection, such as the buckling analysis, the capacity design and the design resistance analysis.
8. Management of the reports and documentation that the software can generate.
9. Once all the software's tools have been demonstrated, we propose a teaching unit with step-by-step examples of the modelling of complex connections, in which the theory from the previous units will be applied to real-life examples.
10. A section which compiles additional material in which some content from the various theory sections is explained and illustrated with examples. It also covers some interesting points that have not been dealt with previously.
11. Lastly, it will be the student's turn to produce those complex connections for the end of course assessment.

If you wish to see the course structure and content in greater detail, you can access the trial version of the course via the following link: <https://campus.ideastatica.com/course/view.php?id=3>

METHODOLOGY

The teaching methodology used comprises a series of video tutorials, supported by reference documents in PDF format.

In addition, a variety of short reinforcement activities are set at the end of the lessons of each teaching unit. These activities can be of two types: questionnaire type tests that are taken via the campus and immediately marked; and modelling tasks that are submitted for the teacher to correct and return with their comments.

Then, there are two final activities that, together with the previous ones, make up a total of 10 activities, the completion of which is necessary to obtain the professional certificate issued by IDEA StatiCa. The mark that must be obtained in order to pass each activity will be 5 out of 10.

Each activity can be attempted twice. Once the two attempts have been completed, you will have access to the activity's solution so that you can evaluate any differences.

TUTORIAL SYSTEM

The student will have access to two types of tutoring: individual tutoring, in direct contact with the teachers, and a group system via forums which will encourage interaction and collaboration between students.

The individual type of tutoring will take place via the platform's internal messaging service or via email at campus@ideastatica.com.

The working hours for tutorials are Monday to Friday, from 09:00 to 18:00 (UTC/GMT +1).