2024 Training Plan

Limited Enrollment

1. **Steel Structures Design**
   (5 days of training) September 2024
2. **Concrete Structures Design**
   (5 days of training) October 2024
3. **Foundation Design**
   (2 days of training) November 2024

SH

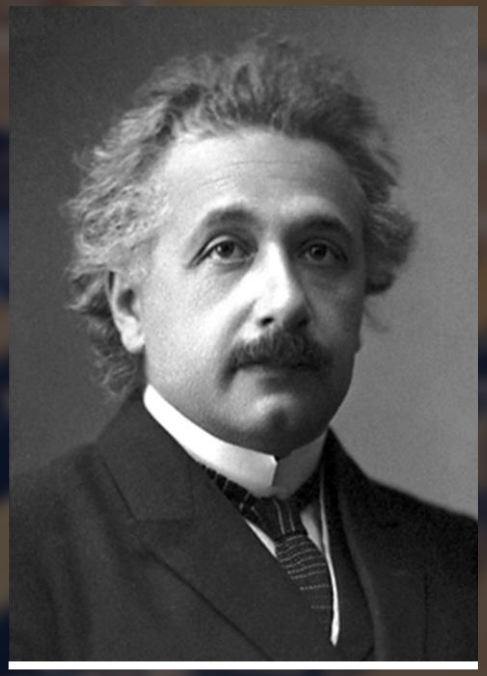
Either We **Find** a Way or **Create** One

Ahmad Shahgordi

- Instructor of the Training Sessions
- CEO of SHAH Oy
- FISE Qualification
- Member of RIL
- Senior Lecturer
- Chief Structural Designer
- Language: English

Goal of Training

The goals of SHAH Academy can be summarized in the following quote by Albert Einstein:



“The mere formulation of a problem is far more often essential than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions and possibilities, to regard old problems from a new angle requires creative imagination and marks real scientific advances.”

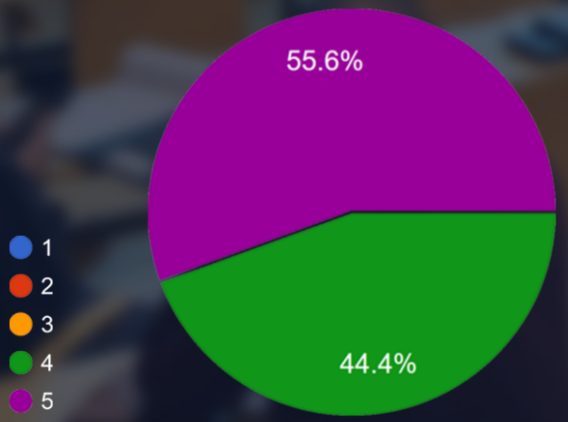
At SHAH, we understand that theory-heavy education for engineers often lacks practical skills. We always try to bridge the theory to practice by teaching how to understand the problem.

Feedbacks

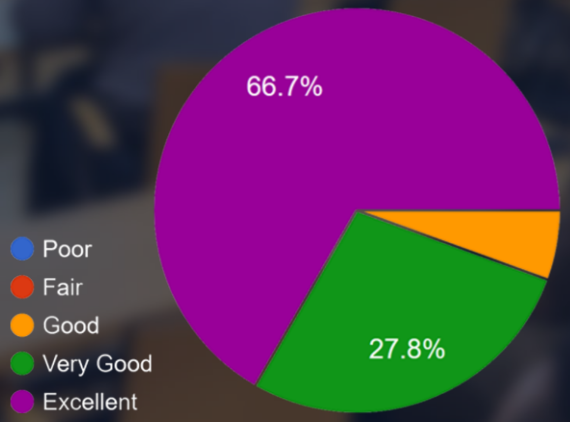
Below is the feedback from the training sessions conducted at SHAH Academy:

- He is a really good speaker with clear ideas in his mind all the time when speaking.
- The instructor was very professional and presented the topics in an understandable manner.
- Very experienced approach to the subject.
- The instructor is very enthusiastic about the subject.
- The training was enlightening, and I am very happy that I participated.
- Inspiring.

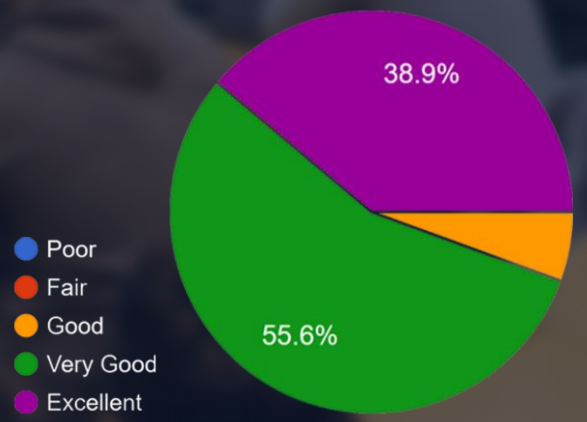
On a scale of 1 to 5, how satisfied are you with the overall training session?



How would you rate the instructor's ability to explain concepts clearly?



How would you rate the quality and relevance of the training materials provided?



Ahmad Shahgordi's Background (2000-2023)

- **FISE** qualification: Teräsrakenteiden suunnittelija, Uudisrakentaminen at the qualification level **Poikkeuksellisen vaativa**;
- **FISE** qualification: Betonirakenteiden suunnittelija, Uudisrakentaminen at the qualification level **Poikkeuksellisen vaativa**;
- Member of **RIL** - Finnish Association of Civil Engineers;
- Attendance of the last PÄASUUNNITTELIJAKOULUTUS NRO 24 of **SAFA**.
- Senior lecturer at **HAMK** since Jan 2020 (Taught courses: Basics of Structural Steel Design, Advanced Steel Structures, Structural Fire Design, Design of Concrete Structures, Advanced Concrete Structures, Foundation Design, Precast Concrete, Advanced Mechanics, Conceptual Design of Structures, Load Bearing Frames Of Buildings And Their Stability, Design of Timber Structures.)
- Teaching assistant at **Aalto University** since 2018 (Taught courses: Mechanics of Beam and Frame Structures, Fundamentals of Structural Design, Stability of Structures, and Material Modelling in Civil Engineering.)
- Ahmad Shahgordi, the CEO of SHAH Oy, is highly experienced in working with codes like **Eurocode**, CSA, **AISC**, ACI, ASCE, API, ASME, Korean, and Chinese GB codes.
- Able to design structures under accidental loads, like Seismic and industrial structures under high temperatures.
- Involved in projects like Agnico Eagle, Boliden Kevitsa, and Vantaa Airport in **Finland**, KMW in **Germany**, and OKI2, the most enormous recovery boiler ever built on earth by the time of construction in **Indonesia**.

Steel Structures Design

(5 days of training)

Day 1 & 2: Eurocode 1993-1-1:

- Review of actions' combinations (EC 1990-1-1)
- Cross-section classification
- General element dimensioning
- Buckling phenomenon
- Column design
- Beam design
- Beam-column design
- Imperfection
- Second-order effect

Day 3: Eurocode 1993-1-5

- Introduction to plate buckling
- Shear lag in member design
- Plate buckling effects due to direct stresses at the ULS
- Calculation of critical stresses for stiffened plates
- Cross-section class 4
- Plate buckling: resistance to shear/ transverse forces
- Contribution from flanges
- Flange induced buckling

The teaching theory is based on the Eurocodes and the Finnish National Annex.

Steel Structures Design

(5 days of training)

Day 4: Eurocode 1993-1-8

- Introduction and basics of design
- Bolted connections
- Shear/bearing/tension resistance
- Block tearing
- Welded connections
- T-stub failure modes
- Structural joints connecting H or I sections
- Hollow section joints

Day 5: Eurocode 1993-1-2

- Introduction and basics of design
- Material properties
- Nominal/parametric fire curves
- Steel temperature development
- Design of beams at elevated temperature
- Design of columns at elevated temperature
- Design of beam-columns at elevated temperature
- Critical temperature method

The teaching theory is based on the Eurocodes and the Finnish National Annex.

Concrete Structures Design

(5 days of training)

Day 1:

- Review of actions' combinations (EC 1990-1-1);
- Review of EC 1991;
- Concrete material;
- Reinforcement material;
- Anchorage;
- Failure phases of flexural elements;
- Bending in ULS;
- Shear in ULS;

Day 2:

- Creep;
- Shrinkage;
- Serviceability limit states:
  - Stress Limitation;
  - Crack Control;
  - Deflection Control;
- Beams' detailing;
- Slabs' detailing;

Day 3:

- Imperfection;
- Buckling Phenomena in Concrete structures;
- Column Categorization;
- Design of Short columns;
- Slender Column (Nominal Stiffness Method, Nominal Curvature Method)
- Design of slender columns;
- Columns under biaxial bending moments;
- Wall Design;
- Columns' detailing;
- Walls' detailing;

The teaching theory is based on the Eurocodes, the Finnish National Annex and BY theories.

Concrete Structures Design

(5 days of training)

Day 4:

- Strut and Tie method;
- Corbel Design;
- Corbels' detailing;
- Shear between web and flanges of T-sections;
- Shear at the interface between concretes cast at different times;
- Torsion;
- Punching ;
- Ground Slab Design according to "by 45";

Day 5:

- Design of fastenings for use in concrete (EC 1992-4);
- Connections Design;
  - Bearings design;
  - Wall connections (loop connections, wall shoes);
  - Dowel design;
- Element Detailing (beams, columns, floors, internal walls, façade walls);
- Precast Concrete Against Accidental Actions.

The teaching theory is based on the Eurocodes, the Finnish National Annex and BY theories.

Foundation Design

(2 days of training)

Day 1:

- Review of actions' combinations (EC 1990-1-1);
- Type of footings;
- Introduction to EC7;
- Ultimate Limit States (EQU, STR, GEO, UPL, HYD);
- Soil Engineering;
- Soil Mechanics;
- Soil Classification;
- Effective Stress;
- Bearing load distribution;
- Lateral earth pressure;
- Settlement of the soil;
- Design Approaches;
- Geotechnical Design:
  - Undrained Condition;
  - Drained Condition.

Day 2:

- Foundation structural design (spread, mat, strip footing):
  - Flexural Design (ULS);
  - Shear Design (SLS);
  - Stress Limitation (SLS);
  - Crack Control (SLS);
  - Punching Design;
  - Anchorage Design;
  - Footing Detailing;
- Pile Design:
  - RR Piles;
  - RD Piles;
  - Design Tools;
  - Detailing;
- Retaining wall design.

Timetable and pricing

Steel Structure Design:

- ✓ Eurocode 1993-1-1
- ✓ Eurocode 1993-1-2
- ✓ Eurocode 1993-1-5
- ✓ Eurocode 1993-1-8

Day	Date
Day 1	September 2024
Day 2	
Day 3	
Day 4	
Day 5	

Concrete Structure Design:

- ✓ Eurocode 1992-1-1
- ✓ Eurocode 1992-4
- ✓ BY

Day	Date
Day 1	October 2024
Day 2	
Day 3	
Day 4	
Day 5	

Foundation Design:

- ✓ Eurocode 1992-7

Day	Date
Day 1	November 2024
Day 2	

ENROLLMENT FEE:

1. Steel Structures Design (5 days of training) — **545 €/day, whole 5 days 2 525 €* + VAT**
2. Concrete Structures Design (5 days of training) — **545 €/day, whole 5 days 2 525 €* + VAT**
3. Foundation Design (2 days of training) — **Both 2 days 1010 €* + VAT**

General Notes

- Hybrid teaching will be provided: contact teaching is in the center of Helsinki (the place and dates will be confirmed later), and the rest will follow online.
- A final exam will be scheduled three weeks after the last session to allow participants ample time for preparation and study. The exam will be a 3-hour open book exam in which attendees can use all codes, learning material, and so on to answer questions. For each day, two assignments will be provided to be returned before the exam day. According to the experience and content of the teaching, it is believed that every day of teaching equals one credit based on the European Credit Transfer and Accumulation System (ECTS).
- The training sessions will cover the first generation of Eurocodes and introduce the second generation (mandatory from March 2028) where relevant.
- For each course, participants can attend whichever days they prefer. For best results, attending all days of the event is recommended due to the content's coherence.
- The Enrollment Fee includes a morning coffee break, lunch, afternoon coffee break, and coffee/tea throughout the day.